THE BUILDER

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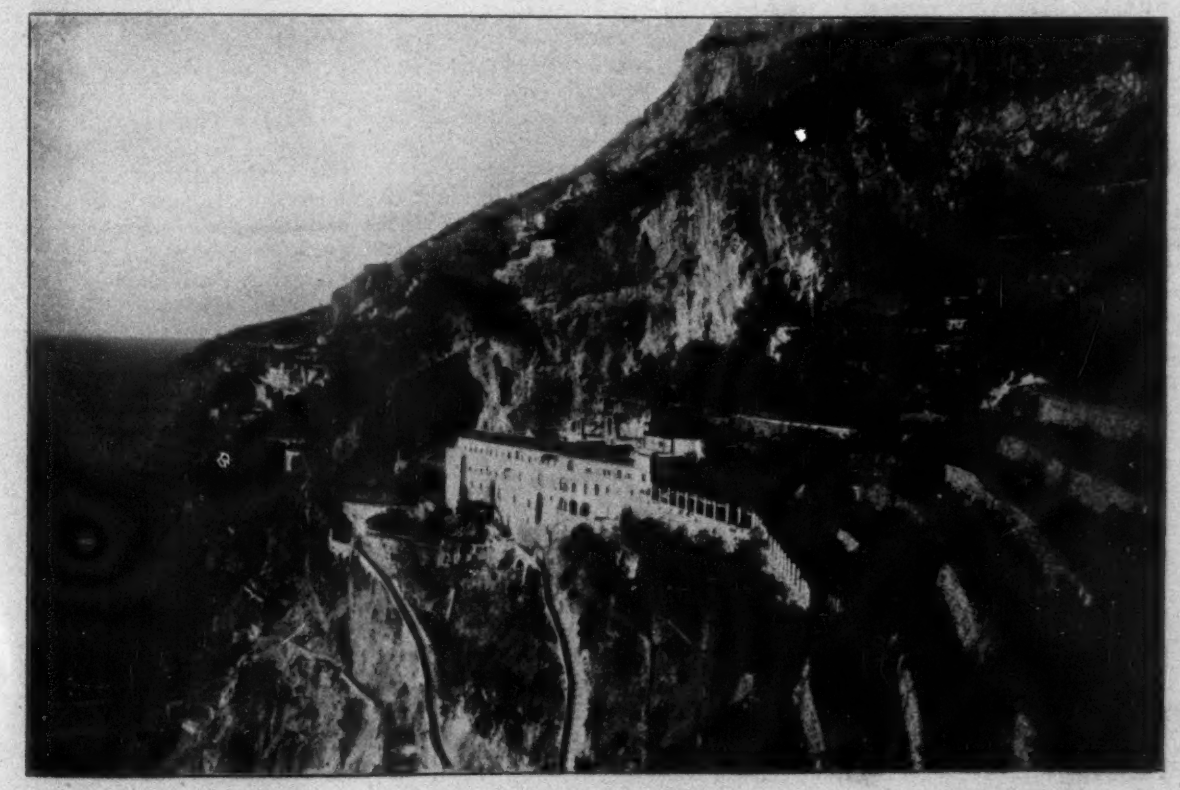
Illustrations.

Marylebone Municipal Buildings Competition :—
- Detail of Design Placed First, by Mr. T. Edwin Cooper, F.R.I.B.A.
- Detail of Design Placed Third, by Messrs. North & Robin.
- Detail of Design by Messrs. Lanchester & Rickards.
- Detail of Design by Mr. W. Curtis Green, F.R.I.B.A.
- Detail of Design by Mr. Robert Atkinson, A.R.I.B.A.



The Cappuccini, Amalfi.

AMALFI.

AMONG the many beautiful cities of the South which have been overwhelmed by earthquake or flood, or devastated by war, few have retained through all their misfortunes so many relics of the past with so charming and picturesque an aspect as has Amalfi; and, although almost a millennium has gone by since it lost its proud independence, its name will ever rank high in the history of the early Middle Ages in Italy. Few, unaware of the important part it had once played on the world's stage, approaching it for the first time either by land or water, and seeing it hemmed in between its mighty cliffs and the treacherous sea, would imagine that it had ever been other than a beautiful sequestered village; and, even to those who may have had some recollection of its stirring history, the same idea may have occurred which evidently struck Hallam after he had seen it in 1848, and induced him to append that note to his chapter on "Mediterranean Commerce," in which he expressed his opinion that the stories about its opulence and commerce had been exaggerated, and that the descriptions given of it by William of Apulia are to be taken as a poet's panegyric.

A slight sketch of the history of Amalfi and an account of its many misfortunes are necessary as an introduction to any description of its architecture; and from these we shall see that Hallam did not make a sufficient allowance for the geological changes which have affected its character, and which had made the statements of the mediæval historian to appear so extremely poetic. The connected history of the place does not commence before the VIth century, for the numerous remains of Classic art to be found in the various buildings did not belong to the site, but were brought, according to popular belief, from the neighbouring city of Pæstum, but more probably from Capri or Naples. At the opening of the VIIth century it already had its bishop, and in 987, after its prosperous era had commenced, Leo, of the family of Orsocomiti, became its first archbishop. Although for a long period it claimed a

at Constantinople by the founder, Staurachios, and was one of several made during the latter half of the XIth century for members of the noble Amalfian family of Pantaleone which they presented to various places in Southern Italy. It is formed in twenty-four panels, divided between two valves, and four of the panels arranged across the centre are decorated with figures of Christ, the Blessed Virgin, and SS. Peter and Andrew, placed beneath round-arched canopies. All these are formed by lines incised in the bronze, and filled in with coloured mastics, generally green and red, while the faces are filled in with silver, having the features outlined with a finer black niello. The remaining twenty panels have raised crosses of a peculiar shape, only to be found on the bronze doors of Greek origin, such as those at Venice, S. Paolo f.m. Rome, Monte Cassino, and elsewhere in South Italy, each cross being secured to the panels by four bold rivets. The doors bear two inscriptions formed of incised letters filled in with green mastic, which give the name of the donor as "Pantaleon filius Mauri de Pantaleone de Mauro de Maurone comite."

An addition was made to these doors subsequent to their erection by a row of six lions' heads riveted on to the second rail from the bottom, each head holding a ring in the mouth. These are not closing rings, nor can they be regarded as ornaments, and, like the row of eight across the central doors of S. Mark's, Venice, have been clearly added for some purpose not at the present time quite evident. There is a similar row of heads and rings across the Greek doors of the pilgrimage church of Monte Sant' Angelo, and Hamilton Jackson says of them that they are constantly rattling when the pilgrims are entering the church, for they touch them one after another and kiss their hands afterwards. The discovery in the XIVth century of the curative qualities of an exudation from the body of S. Andrew, known as the Manna of S. Andrew, made this an important pilgrimage church, and the association of such rings with the idea of sanctuary no doubt suggested their addition at that date.

The interior of the church is hopelessly disappointing, for the whole of it was modernised and decorated in stucco at the beginning of the XVIIIth century by Archbishop Michele Bologna. The eighteen great columns of African brecchia and red Oriental granite, which divided the aisles from the nave, were embedded in brickwork, a pair to each pier like those in S. John Lateran, and cemented over; the frescoes of the walls and the great painting in the apse, showing a gigantic figure of Christ in the act of benediction with the tutelary saints of the city below, were covered up; the great ciborium, encrusted with marbles and supported on pillars of porphyry and verd'antico, was torn down; the ambones were modernised, and all the beautiful furniture and mosaic enrichments of the early church destroyed past remedy: and now we can only say with Bürger's *Lenore*—

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The same Cardinal Capuano founded in 1212, high up on the mountain side of the west of the city, a convent for the Cistercian order, and placed it under the charge of the Abbots of Fossanova; and in 1223, presumably on its completion, its first Abbot was appointed. It was dedicated to S. Peter of Toczolo, a saint unknown to the calendar, but an early Abbot of the Benedictine order; and it was taken under the patronage of the Emperor Frederick II., who raised its church to the position of a capella palatina. Its position, confined to a mere ledge of rock, made any approximation to the usual plan of a Cistercian house utterly impossible; but it is very probable that, with the exception of the cloister and perhaps the chapel, if that was not originally the chapter-house, no portion of the first building remains. The arrangements, until the recent landslip destroyed a portion of the buildings, consisted of a large cloister lying immediately under the overhanging cliff, and opening out of the centre of its east walk a large church of a single aisle roughly vaulted, and to the south of these and facing the sea a long range of buildings three, and in places four, stories in height, two only of which were above the cloister level, divided up into vaulted rooms about 10 ft. by 7 ft., arranged on two sides of a corridor, which are assumed to have been the cells of the Capuchins who succeeded the Cistercians in the occupation of the house, and who have given place in these days to the guests of the Albergo Cappuccini.

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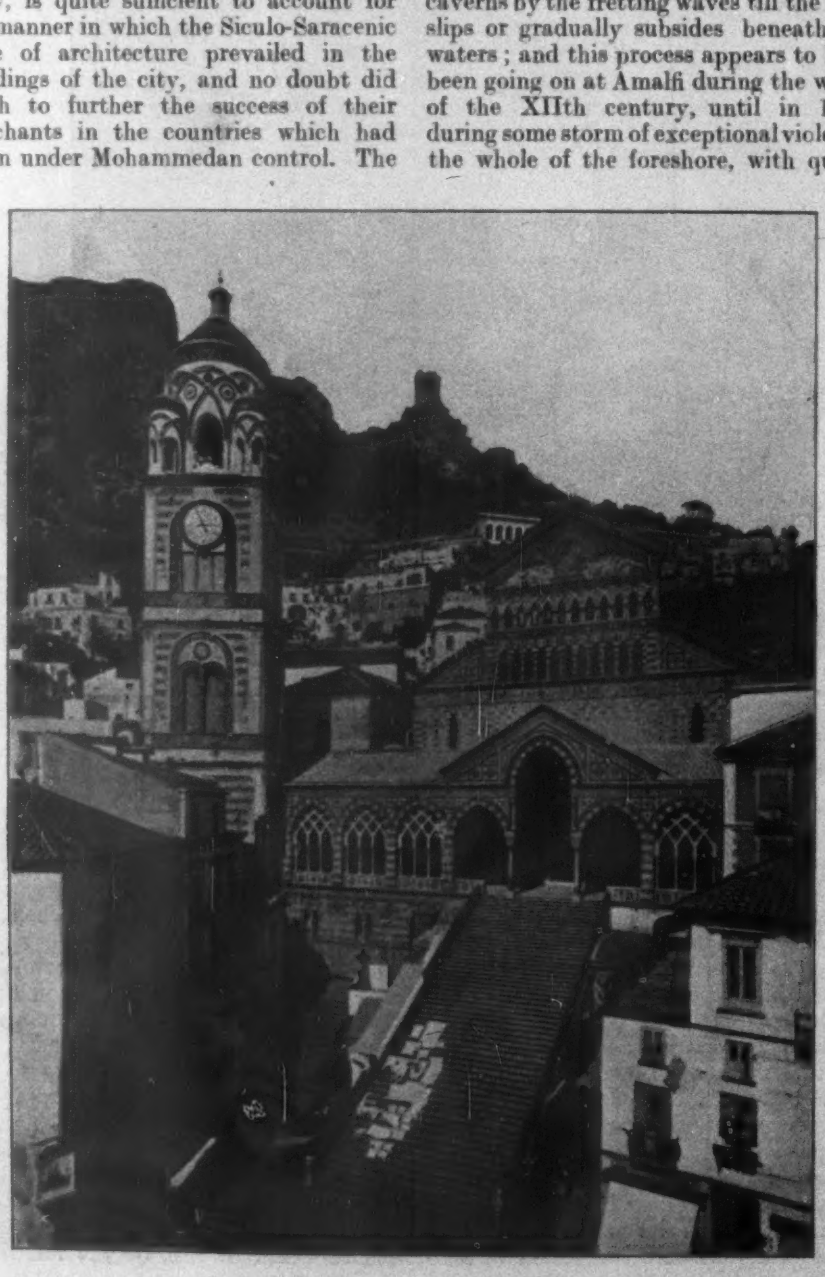
Of the fortifications with which from the earliest times the place had to be protected, the most important towards the sea were engulfed in the great landslip of the XIVth century; but on the spur of the mountain, known as the Monte Aureo, which divides Amalfi from Atrani, and shows above the cathedral in our view, is a round tower and some other crumbling remains of the once strong Castello Pontone. Along the Costa d'Amalfi, however, some seven or eight of the promontories are still crowned with massive and heavily machicolated towers, which tradition says were erected by the Saracens as friends or foes of the city; and they still remain in their ruin as useless, but much more picturesque than the martello towers of our own south coast.

Cloisters of the Cappuccini.

connexion with the Eastern Empire, it was in reality an independent mercantile Republic, under the control only of its own elected doge; and it took the head of the first league mentioned in the history of the Middle Ages, when its fleet, allied to those of Gaeta and Naples, in 849, defended Rome from the Saracens and defeated them in the famous battle off Ostia. For their assistance Pope Leo IV. conferred on the Republic the title of Defender of the Faith; and centuries afterwards the event was pictured by Raphael on the walls of the Stanza dell' Incendio in the Vatican. A few years later, however, Amalfi, with Naples, Salerno, and other Lombard States, did not scruple to ally themselves with the Saracens, who, after the death of Lewis II., had gained a powerful hold on Southern Italy. Although Pope John VIII. sought by a bribe of 10,000 silver mancusi to detach Amalfi from the league, the wily merchants pocketed the cash, and, in spite of their sacred title and of the innumerable excommunications thundered against them by the Pope, refused to desert their infidel allies.

This intimate association of the people of Amalfi with the Saracens during the IXth and Xth centuries, which continued after the Norman conquest of Southern Italy, is quite sufficient to account for the manner in which the Siculo-Saracenic style of architecture prevailed in the buildings of the city, and no doubt did much to further the success of their merchants in the countries which had fallen under Mohammedan control. The factories of Amalfi were to be found in all the principal cities of the East and Sicily; and at Jerusalem, after the destruction of the church of the Holy Sepulchre by the mad Kalif El Hakem, they built the church of Sta. Maria Latina, and the firman granted for its endowment by Melek Muzzafer in 1023 is still preserved in the Franciscan convent of that city.

Amalfi's gradual loss of importance and independence, though not quite at the same time of all its prosperity, coincided with the progress of the Normans in Italy, and reached its climax when, in 1137, its inhabitants were compelled to surrender the city, which had already suffered from previous raids, to a hostile Pisan fleet. But other causes were at work which soon after completed its undoing and for ever destroyed its commercial importance. There seems to be but little doubt that when the city was first built there must have been a considerable undercliff formed by the *débris* fallen from the limestone mountains at the back of it, and on this the greater part of the place had been erected, and between its projections had been formed the spacious harbours which sheltered its fleets. But with all limestone formations abutting on the sea the rocks become undermined and formed into caverns by the fretting waves till the land slips or gradually subsides beneath the waters; and this process appears to have been going on at Amalfi during the whole of the XIIth century, until in 1343, during some storm of exceptional violence, the whole of the foreshore, with quays, arsenals, and walls, slid into the Mediterranean. Such slips, though not so extensive, seem to have taken place at intervals all through the later centuries, in one of which the cathedral was reduced to its present size; and only two or three years ago a most extensive fall of the cliffs took place and caused the partial destruction of the celebrated Cappuccini convent. The cause of this was the prolongation of the coast road past the headland on which the convent stands, to be seen in our view (p. 661), already weakened by the great pilgrimage grotto; and the work, still further reducing the strength of the natural abutment, caused a large part of the Cappuccini, together with an hotel and other buildings beyond the headland, to slide into the sea.



Duomo, Amalfi. [*Photo. by Sommer.*

The cathedral church was fortunately built well within the ravine which now contains all that is left of Amalfi, and was thus saved from the catastrophe which overwhelmed most of the other buildings. It is raised high upon a lofty basement, which contains the crypt, and is intersected by one of the numerous low-lying streets which wander among the dark underground parts of the city. It is reached by a broad staircase of fifty-seven steps, at the head of which is a large narthex of two aisles extending across the whole width of the church. The internal columns, as well as others which once stood along the front before the recent restoration, are mainly ancient, some spirally fluted, with ancient bases and capitals of different designs. The front of the narthex has been much altered in the restoration, and, although there is ample authority for the characteristic tracery of the windows which show to the north and south, there is none for the raised arch of the central entrance; and the original condition is preserved in an engraving by Schulz in his *Mittelalters in Unteritalien*. The upper part of the façade is entirely a modern architect's fancy, the original work having been destroyed in the XVIIIth century, when the church was Italianised throughout.

The great campanile, built not quite square to the main structure, standing to the north of the narthex was erected, as an inscription on the east face of it testifies, in 1276; but it has suffered much from the plaster decorations added at a later date. The upper story, however, consisting of a central circular tower, with smaller ones at the angles, still retains its original appearance, and is perhaps one of the most perfect examples of the Siculo-Saracenic treatment of towers, and may be favourably compared with similar ones at Gaeta and Caserta-Vecchia. The green and yellow stone of the intersecting arches, the blackness of the unglazed openings, and the iridescent lustre of the tiles have altogether a most brilliant effect against the sombre background of the surrounding cliffs.

The central portal, within the narthex, has its marble jambs richly carved with scroll-work containing mythological subjects, such as centaurs, griffons, and dragons, similar to the work at Monreale and Benevento, and the lintel is partly made up with fragments of ancient cornices. These enclose one of the most remarkable of the bronze doors produced

at Constantinople by the founder, Staurachios, and was one of several made during the latter half of the XIth century for members of the noble Amalfian family of Pantaleone which they presented to various places in Southern Italy. It is formed in twenty-four panels, divided between two valves, and four of the panels arranged across the centre are decorated with figures of Christ, the Blessed Virgin, and SS. Peter and Andrew, placed beneath round-arched canopies. All these are formed by lines incised in the bronze, and filled in with coloured mastics, generally green and red, while the faces are filled in with silver, having the features outlined with a finer black niello. The remaining twenty panels have raised crosses of a peculiar shape, only to be found on the bronze doors of Greek origin, such as those at Venice, S. Paolo f.m. Rome, Monte Cassino, and elsewhere in South Italy, each cross being secured to the panels by four bold rivets. The doors bear two inscriptions formed of incised letters filled in with green mastic, which give the name of the donor as "Pantaleon filius Mauri de Pantaleone de Mauro de Maurone comite."

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NOTES.

King Edward Memorial.

We notice that, in answer to a question in the House of Commons, Mr. Dudley Ward, representing the First Commissioner of Works, stated that the Government had not yet given its consent to the selection of the site at the end of the Broad Walk in the Green Park for the proposed memorial to King Edward VII. He understood that before anything was finally settled the designs should be exhibited and the House of Commons be given the opportunity not only to discuss, but to give a verdict on the question. We have already expressed our adverse opinion on this site and a preference for that at Hyde Park-corner, and we hope that the House of Commons will express the same opinion. There is little doubt that the artists selected will produce a competent design for this site, but they could produce a better one if they had the Hyde Park-corner site to deal with. We trust that when the matter comes before Parliament this point of view will not be lost sight of, and that the discussion will turn on the comparative suitability of the two sites and not on the merits or demerits of the particular designs submitted except in so far as this may tend to emphasise or prove the inherent limitations and drawbacks of the site.

The King Edward Memorial, Liverpool.

Once more the Liverpool Finance Committee has been pronouncing on the King Edward Memorial proposal for St. George's Hall, and has unanimously approved the revised scheme already discussed, which places the monument at one corner of the south podium and leaves the other corner "to let" for some future celebrity. The absurdity of such a course is obvious, and only indicates how hopelessly incapable is this Committee in the task of dealing with the æsthetic or philosophic aspect of the question. The *Liverpool Daily Post* points out the superior claims of the central position on the east side of the hall, advocated by Professor Adshead. The fact that this position is already occupied by a statue of the late Earl Beaconsfield seems to have imported a certain amount of political bias into the discussion, but as this statue is manifestly inadequate in scale and mass it would clearly be advantageous to find a place for it elsewhere. The whole conflict is but another example of our haphazard procedure in leaving matters of this kind in the hands of those least qualified to deal with them.

The Mansion House.

We make a reference elsewhere (p. 682) to the present condition of the Mansion House and the apparent need for drastic renovations. The immense value of the site has aroused the feeling among the City magnates that it would be good business to remove the Lord Mayor's residence to a less valuable site. That of the Old General Post Office has been suggested, but, of course, if any change is to be made, the logical position is one in intimate relationship to the Guildhall. We should, however, strongly deprecate any change at all if it were made with a view to the demolition of Dance's building, which, with all its faults, harmonises with the Bank and the Royal Exchange, and could not be adequately replaced by a block of commercial offices. To retain the building and divert it to some other civic purpose would be the most reasonable solution of the problem, as it is in many respects ill suited to its present use; but rather than lose such a familiar and dignified feature of the City's central group we should prefer to maintain the present arrangement, subject to all possible amelioration in the way of approaches and internal planning.

Southwark Bridge.

It was stated at the Court of Common Council's meeting last week that the reconstruction of Southwark Bridge will be at once proceeded with. The bridge was built in 1815-1819, at a total cost of some 800,000*l.*; the ironwork, weighing 5,780 tons, was supplied by Messrs. Walker, of Rotherham, Messrs. Jolliffe & Banks were contractors for the masonry. John Rennie's designs were for a bridge having three cast-iron arches, whereof the middle arch has a span of 240 ft., and the two others a span of 210 ft., with a headway of about 30 ft. above the highest spring tides, and a width of 42½ ft. The masonry is tied throughout with vertical and horizontal bond stones; the iron ribs form a series, then newly adopted of hollow masses, or voussoirs, as of stone, all the segmental pieces and braces being secured with long wedges and dovetailed sockets; bolts were used only during the construction. The spandrels are similarly connected; the roadway is of solid cast-iron plates joined together by means of iron cement. Joseph Gwilt made the approaches, north and south; the gradient rates are steep, being 1 in 20 (Queen-street) and 1 in 23 (Bridge-road), and have militated against the use of the bridge for horse-drawn traffic. The Corporation bought the bridge in 1868 for 200,000*l.*

London Institution, Finsbury-circus.

Our readers will recollect that four or five years ago proposals were made for an amalgamation of the London Institution with the Royal Society of Arts. The Oriental Studies Committee of the India Office have just issued an interim report, to which are annexed Professor F. M. Simpson's plans for adapting, at a cost of about 25,000*l.*, for purposes of a School of Oriental Languages, the existing premises of the London Institution, of which the site is tentatively valued at not less than 100,000*l.* The Committee are unanimously of opinion that it would be difficult to find a site with greater advantages than that contemplated by their report. The London Institution, established in 1805-6 by a proprietary body for "the advancement of literature and the diffusion of useful knowledge," had its first home in what had been Sir Robert Clayton's house, *temp.* Charles II., at No. 8, Old Jewry, where Porson lived as librarian. In 1812 the library and offices were transferred to King's Arms-yard, Coleman-street. Seven years afterwards the Institution migrated to the present buildings which Cubitt had erected in the then Amphitheatre, Moorfields, at a cost of 31,124*l.*, after designs and plans by William Brooks, who adapted the Corinthian portico from the Temple of Vesta at Tivoli. Of the laboratory, designed by W. H. Pepys, F.R.S., there is a view in Parke's "Chemical Catechism," 1826. The library, 97 ft. by 42 ft. and 28 ft. high, on the first floor, is one of the finest rooms after its kind in London; in the rear is the theatre or lecture-room, having a capacity for 700 persons. William Upcott, who succeeded Porson in 1808, collected the valuable series of topographical works; another librarian was Richard Thomson, author of "The Chronicles of London Bridge," 1827.

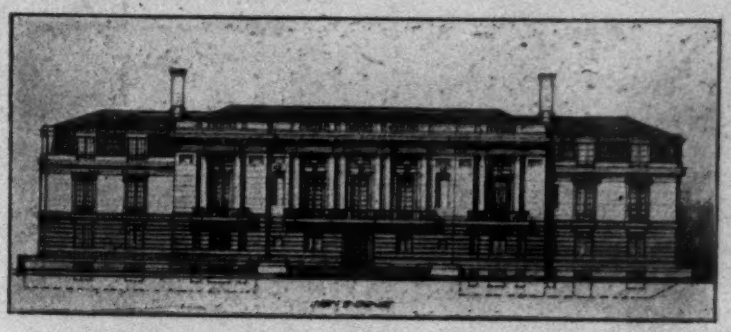
The New Examiner of Plays, and After.

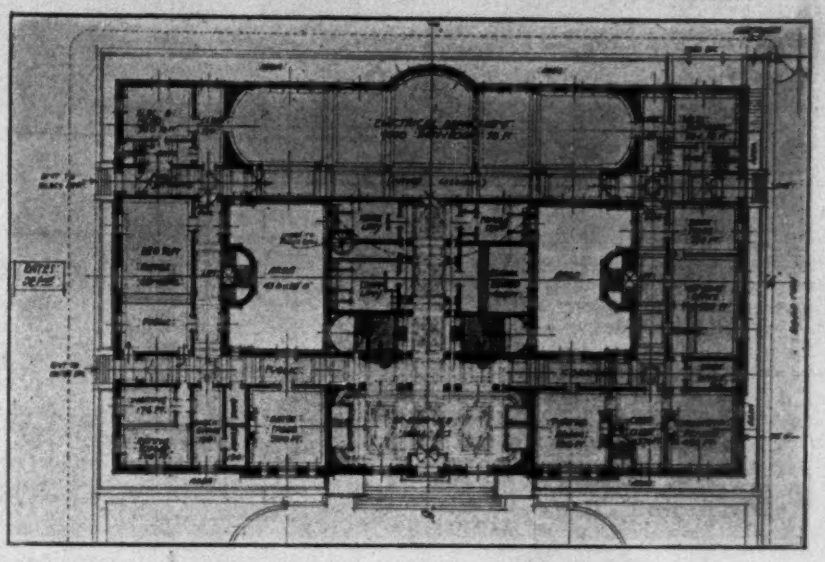
The recent appointment by the Lord Chamberlain of Mr. Charles Brookfield as a joint Examiner of Plays is not without indirect interest to architects, in view of the growing feeling in favour of the appointment of a Minister of Fine Arts. For the first time in its history since the end of the XVIIIth century the theatre during the last twenty years or so has opened its doors to a type of work which has commanded the respect and interest of people who wish to find in their amusements at once an intellectual and artistic recreation. Matthew Arnold's almost despairing appeal for the theatre to reorganise out of its inconsequence and inanities a better state of things was uttered at a period which Mr. Brookfield would probably distinguish as the golden age of the later British drama. A better state of things in more recent times has come to pass; and then we have at the height of a progressive movement this reactionary appointment. We do not doubt that Mr. Brookfield will be an impartial judge according to his lights. But that is not the point. The point is that it will be necessary for Mr. Masefield, Mr. Galsworthy, Mr. Bernard Shaw, Mr. Granville Barker, and other dramatists of the thoughtful kind, who are gradually forming a school of drama unique in its way, to submit their work before production to a type of intelligence with which they are wholly out of sympathy. And this brings us to the Minister of Fine Arts. The unreserved condemnation by so eminent a politician as Sir William Harcourt of Mr. Norman Shaw's New Scotland-yard, which will be within the recollection of many of our readers, suggests the danger. If we are to have a Minister of Fine Arts we must have the right man. A merely bureaucratic appointment, or an appointment of merely social influence, is calculated to do more harm than good. In France, where the bureaucratic element so largely counts in system, it scarcely operates at all in the choice of its controlling Ministers; and one of the bright spots in the history of the French administration is that it has on more than one occasion given commissions to sculptors and painters who were antagonistic to the dominating Academic influences of their day, but who are now included among the most distinguished of their countrymen. In the case of the drama the

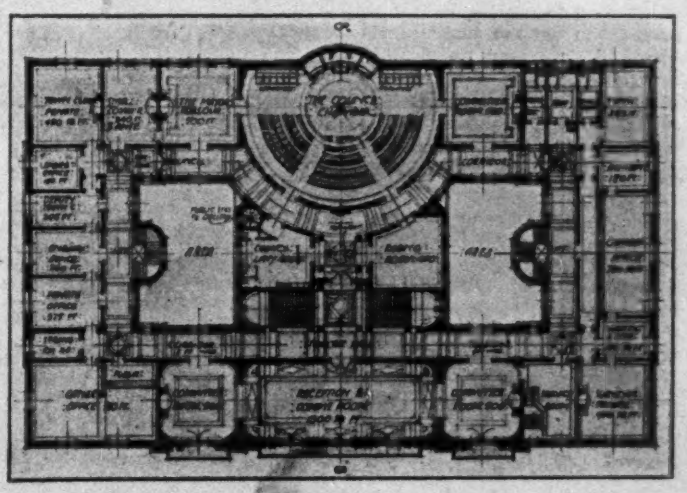
Examiner of Plays is not a Minister, but he is the expert who advises the Minister. A Minister of Fine Arts would have larger and more direct powers of assistance and control, of veto and supervision than even a Lord Chamberlain, however advised, with regard to an art, so far as architecture is concerned, which makes appeal to a smaller public than the drama. It is all the more necessary therefore that when a Government establishes the new office that it should choose not merely a man likely to be impartial, but also a man without preconceived convictions in the direction of a type of art that as an intellectual force is as dead as Queen Anne.

An Artist and an Archæologist.

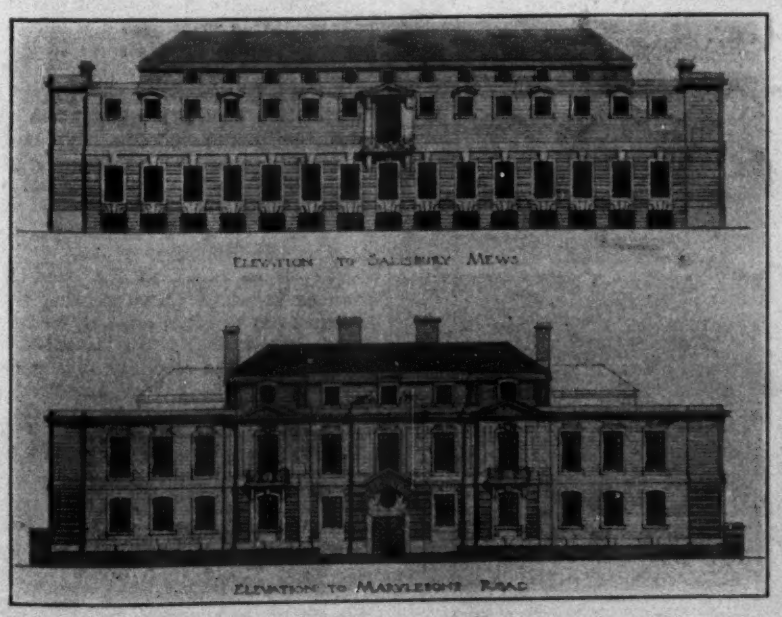
THE two Honorary Associates who were added to the roll of the Royal Institute of British Architects on Monday last will be welcomed by all members of the profession. Mr. Walter Crane and Mr. J. Hubert Marshall represent two artistic interests far enough apart, but coming undoubtedly within the prescribed zone. Of Mr. Crane Sir William Richmond said truly a few years ago that he had brought more happy hours into many homes than any painter of the century. But we must not forget, and the recent election at the Institute will help us to remember, that he has achieved distinction in other fields, having given, for example, to the art of interior decoration a refined inspiration which was not surpassed in the Victorian era. It will also be recollected that Mr. Crane was one of those who successfully claimed that the west side of Lincoln's Inn-fields should not be allowed to suffer in the Holborn-Strand improvement scheme. Of Mr. Marshall we have heard recently in connexion with his work as Director-General of Archæology in India, and we need do no more than express our satisfaction that probably through the intervention of Lord Curzon the intention of the Government to abolish the Directorship was frustrated. That Mr. Marshall may carry on his excellent work for many years is the hope of all those interested in the future of archæology in India.







By Mr. Robert Atkinson, A.R.I.B.A.: Elevation and Plans.



By Mr. W. Curtis Green, F.R.I.B.A.; Elevations.

MARYLEBONE MUNICIPAL BUILDINGS COMPETITION.

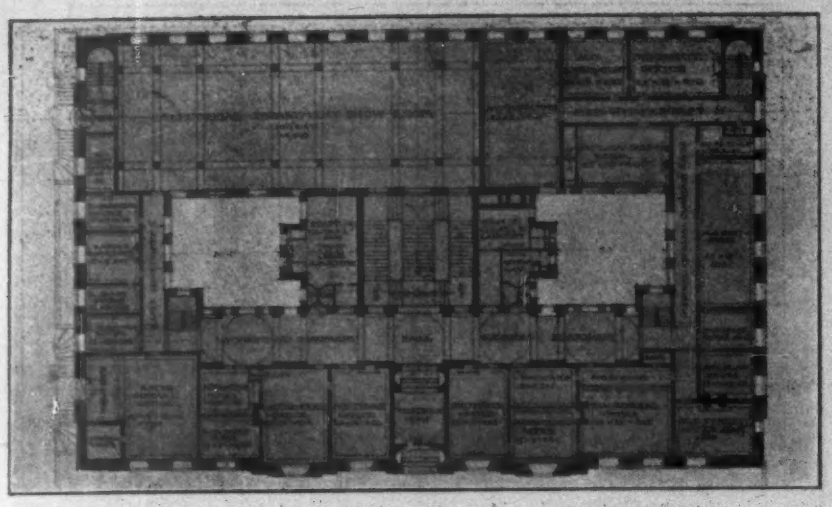
[SECOND ARTICLE.]

ON looking at these 180 detail drawings, and trying to realise the amount of work involved and the nature of that work, we cannot help wondering if they are really all necessary to enable the assessor to form a right judgment. To maintain that they are necessary is a doubtful compliment to either assessor or competitors. In this case they seem of little value in assisting to a right selection, for in the great majority of cases they tell us little of importance that could not have been gathered from the elevation.

We imagine that Mr. Cooper must have won on his general solution of the problem, even if his claim had not been backed up by so arresting a detail.

We certainly do not want to see designs selected simply as practical solutions of a problem, with no regard whatever to their æsthetic qualities.

If the present conditions are such that the competitors are unable to show, or the assessor is unable to discover, the architec-



By Mr. W. Curtis Green, F.R.I.B.A.: Ground Floor.

tural qualities of a sketch design without the aid of details, then, of course, we must put up with them till the conditions improve. But even as things are, surely it would be possible either to have double competitions in every case, or else to so arrange that the assessor would have power to call for details of half a dozen or so if he found it difficult to come to a right decision without them.

One evil result of the present system is very apparent in this competition. With very few exceptions, every one of the competitors has been spending time on his detail which would have been more profitably employed in perfecting his scheme as a whole. The result is that the scheme suffers. We have no hesitation in saying that if no details had been asked for the general level of the designs would have been appreciably raised. As it is, we find the most chaotic plans, and others in which it is evident that the complete development of the idea has had to be abandoned in order to spend time on a detail which, in the circumstances, can express little that is relative to the matter in hand. How many of these schemes have been carried far enough to call naturally for a detail? How many are still in that unfinished state in which the mere idea of a detail is absurd? It is a little difficult to sympathise with the attitude of mind which takes a pleasure in elaborating details where the natural instinct would be to go on recasting and remodelling the scheme until every unit had fallen into its proper place and some general coherence and structural unity of conception had been obtained. Yet, if we may judge from the unnecessary size and elaboration of many of the detail drawings, considerable pleasure has been taken in them, and more importance has been attached to the presentation of a striking detail than of a striking plan.

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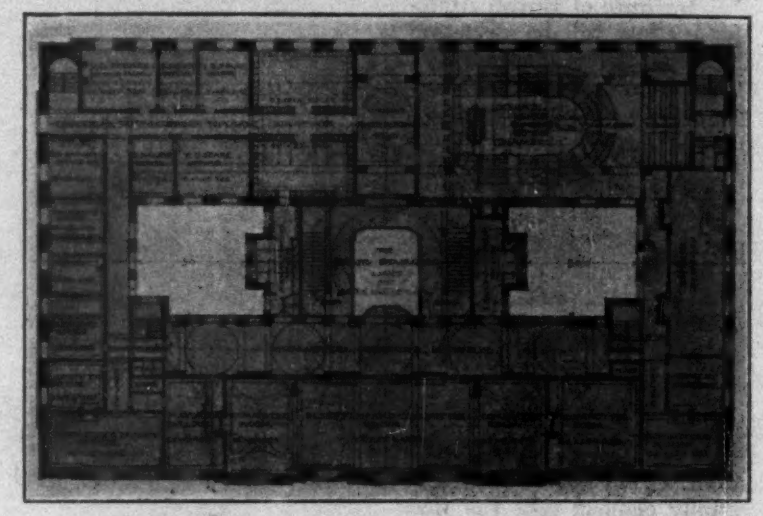
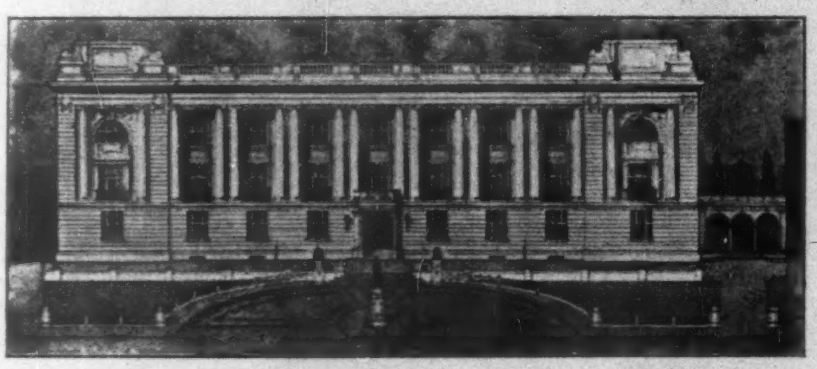
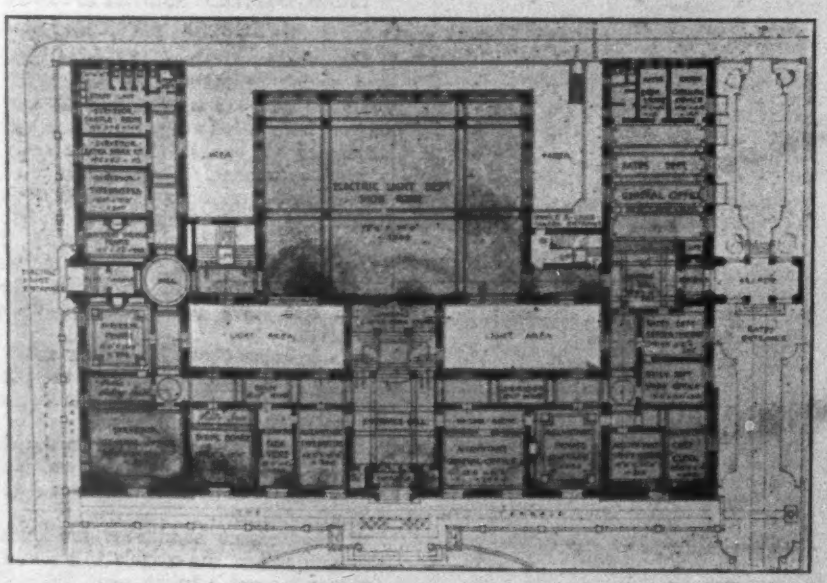


By Mr. W. Curtis Green, F.R.I.B.A.: First Floor.



Elevation to Marylebone-road.



By Mr. J. Reginald Truelove, A.R.I.B.A.: Ground Floor.

symmetry for the sake of the elevations, and how often arbitrary elevations are just planted on without any relation to the plans they are supposed to express, we cannot but feel that the chief interest of many of the designers lies in the elaboration of features and details. They seem quite unconscious that the art of designing begins with the plan, and that there is as much art and as much pleasure in so arranging and grouping the units that their truthful and unforced expressions on the elevations shall naturally produce a characteristic and satisfactory effect, as in elaborating this effect with columns and sculpture. It is the first process which is the essential one in a competition, while it is just the one that nine competitors out of ten seem to ignore and to take no pleasure in whatever, but prefer to adopt a method of procedure that reduces architecture to the level of scene painting, or at any rate to that of an applied art.

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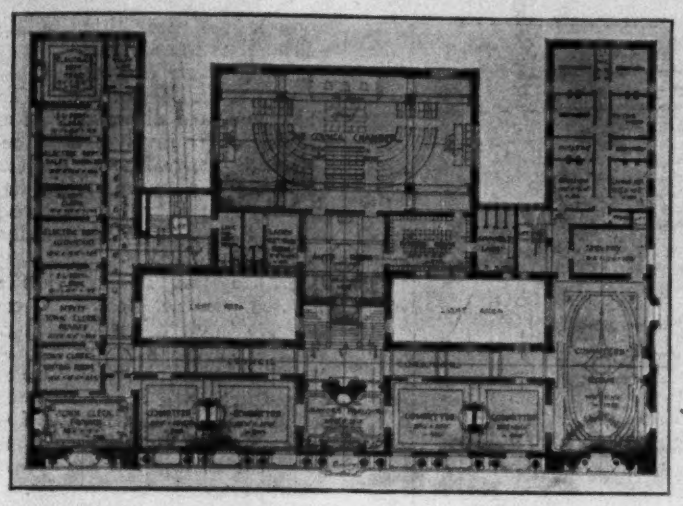

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caught in this way, which explains, if it does not excuse, so regrettable a tendency. But does not this sort of thing tend to discredit competitions in the eyes of thoughtful people, to give the enemy occasion to blaspheme, and to refer contemptuously to the "Renaissance box of bricks"? May it not tend to deter the more genuine and sincere artists from taking any part in what must appear to them too much like a vulgar scramble in which real artistic merit is apt to be overlooked unless it happens to be the art of the poster?

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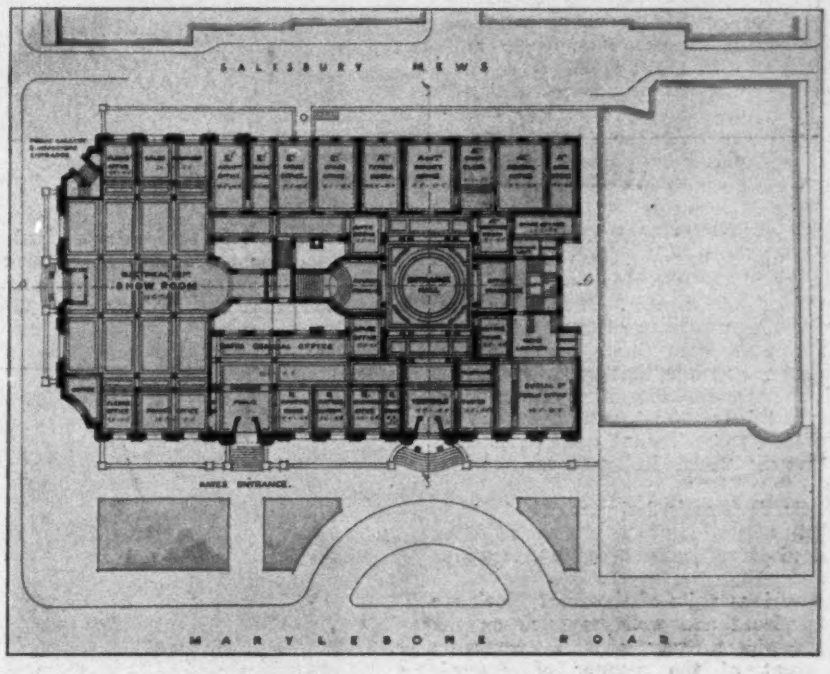
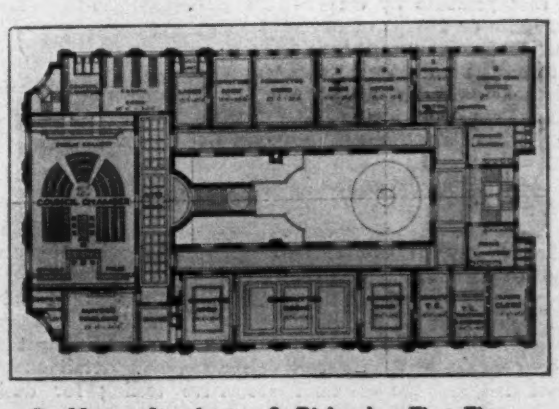


By Messrs. Lanchester & Rickards: Ground Floor.



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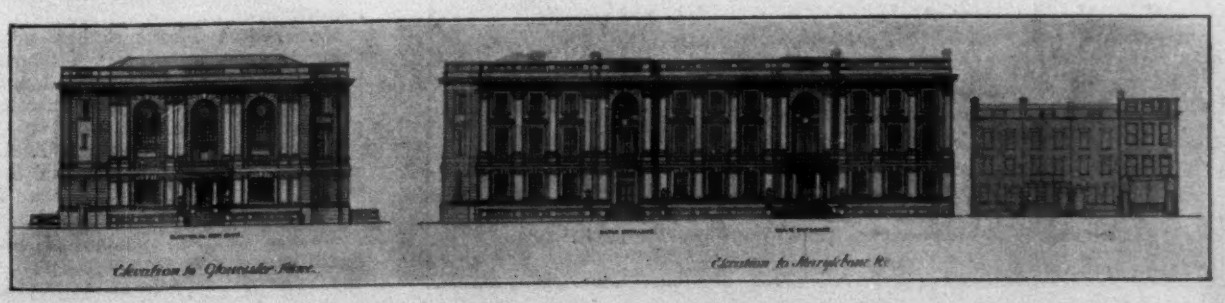

Design by Messrs. Lanchester & Rickards: Elevations.

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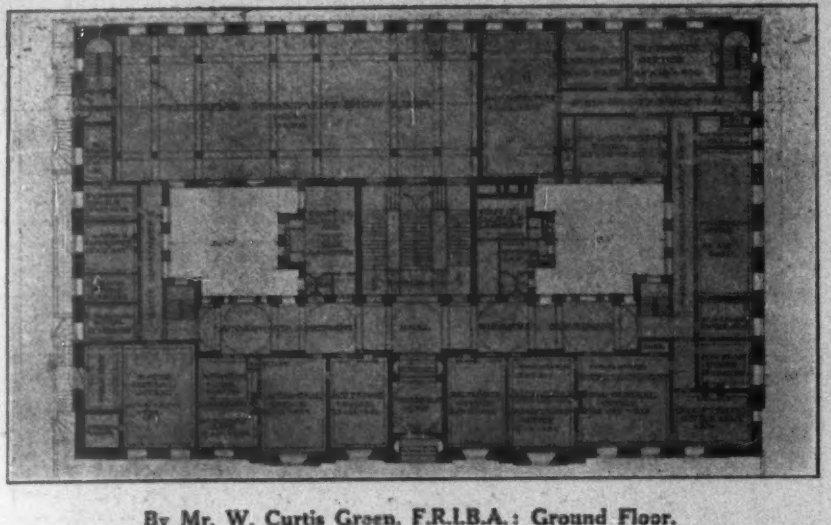

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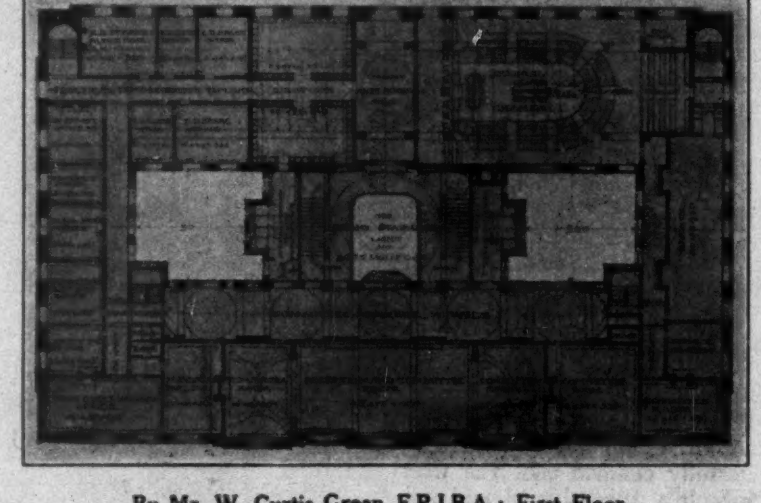

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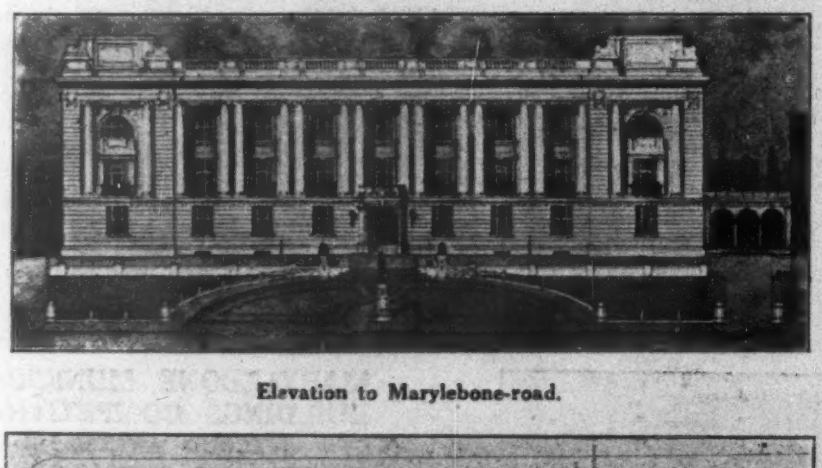
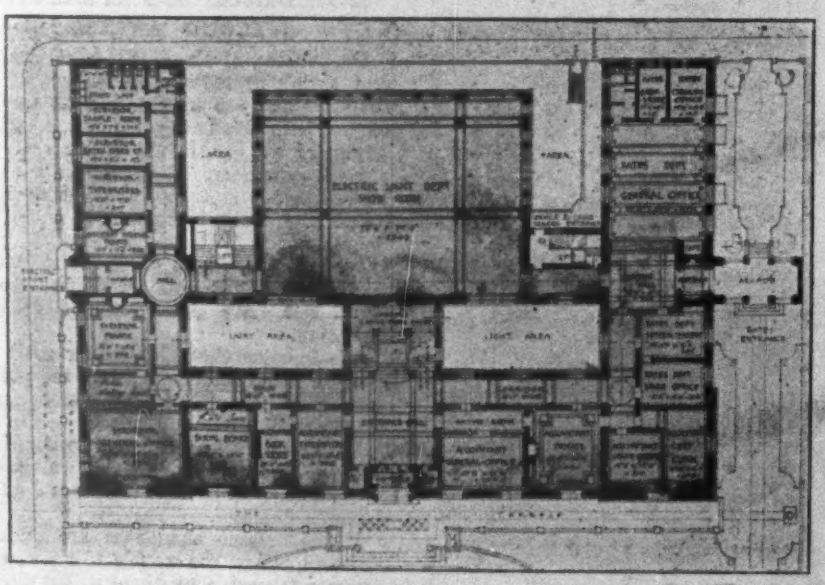


Elevation to Marylebone-road.



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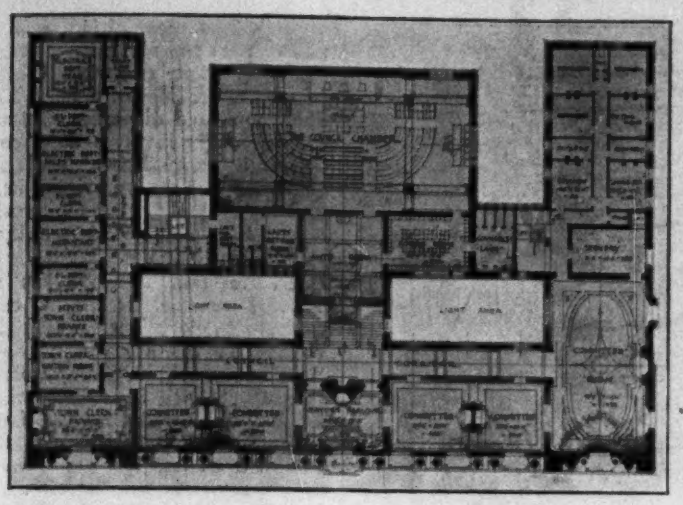

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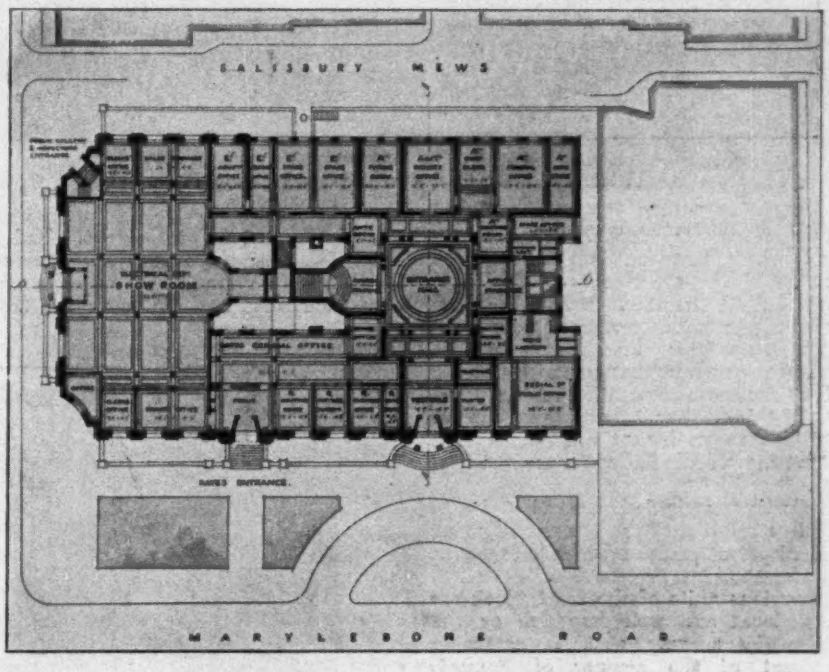
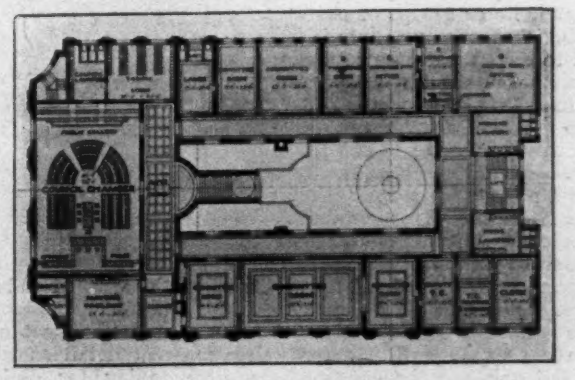


By Messrs. Lanchester & Rickards: Ground Floor.



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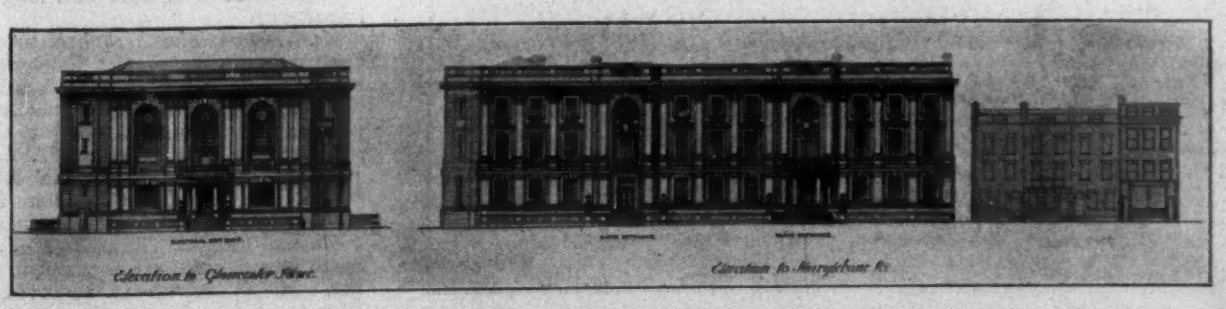

Design by Messrs. Lanchester & Rickards: Elevations.

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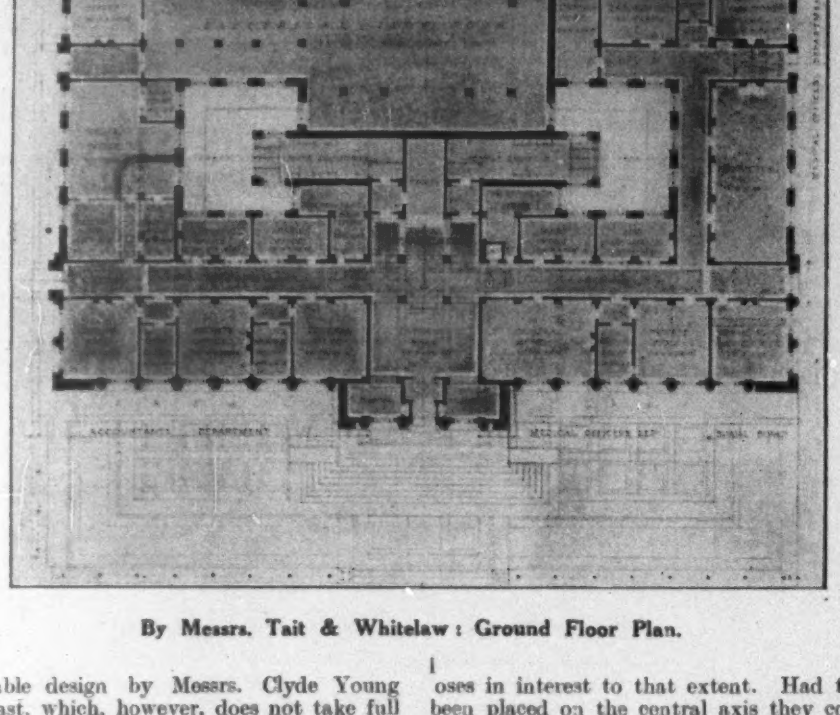


By Messrs. Tait & Whitelaw: Ground Floor Plan.

an able design by Messrs. Clyde Young & East, which, however, does not take full advantage of the opportunity afforded by a central Council Chamber. If any design on these lines was to be commended, it might perhaps have been more reasonable to commend one such as that by Mr. Haywood, which shows more recognition of the possibilities of this treatment, and carries out the ruling idea to its logical conclusions in a way that shows some feeling for monumental design.

Mr. Curtis Green's design may not be so complete a solution of the problem as some, but it displays qualities which interest us more.

The various units of the front block are rightly placed and well expressed on the elevation in a way that is agreeably reminiscent of the manner of François Mansart and of the Carnavalet Museum. The method usually adopted with so much success by Mansart, of drawing out the expression of the arrangements by emphasising the different units or groups of units by separate roofs, is effectively and legitimately employed to emphasise the grouping of the front elevation. It is difficult, however, to admit that this method is rightly applied to the back elevation, where the treatment of the attic seems to call for more justification. The difficulty seems to arise from the position of the principal units on this front, the Electrical Showroom and the Council Chamber, which do not occupy positions in accordance with their importance, and have no organic relation to one another, or to the scheme as a whole. As their emphasis on the elevation would destroy the balance of the composition, they are masked behind a flat wall, and the elevation

oses in interest to that extent. Had they been placed on the central axis they could have been expressed, in which case an attic and separate roof over the Council Chamber alone would naturally express its position and size.

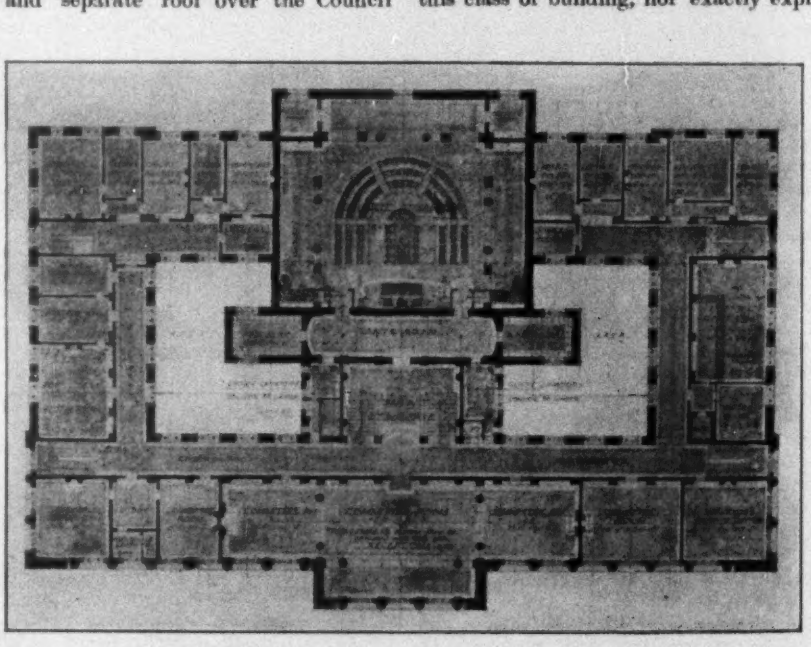
The general treatment of this scheme in elevation and detail shows a reticent and sensitive feeling for design which rarely appears in a competition, and more rarely still obtains the recognition it deserves.

Messrs. Cooke & Twist's E-shaped design solves the problem of light to the Electrical Showroom, and dispenses with small central areas; but it involves dark corridors and defects in convenience. The elevations and detail are expressive, right in scale, and pleasing in quality. A good design in itself, but on lines which are not easily adapted to this class of building.

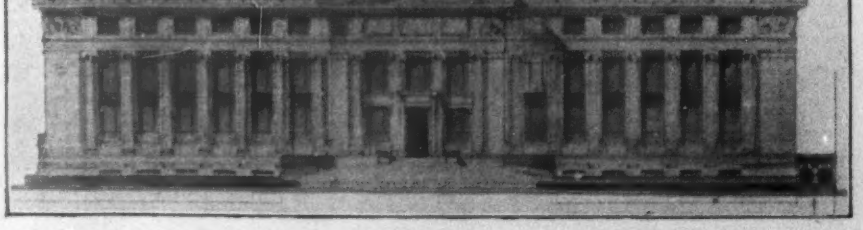
Mr. Reginald Truelove has a well-constructed scheme, truthfully expressed by competent elevations, which is a slight variant on the accepted idea. The three reception-rooms, however, are not in suite as one unit, and it is doubtful if the large committee-room is properly placed, or if it is advisable to occupy space on the principal floor with housekeeper's apartments for the sake of convenience of service.

Messrs. Lanchester & Rickards obtain internal effect with a direct rising approach and vista to the Council Chamber, placed where its full value in the scheme can be realized. The elevations are true in scale with the internal structure, and adequately express the character of the building.

Messrs. Tait & Whitelaw's plan is spoilt by the rooms looking out into the small central areas. Surely in so small a building as this, possessing four frontages with good light, there is no excuse for placing offices in the internal area. This is the place for the lavatories, which are placed on the principal elevation. This elevation is a most competent design in itself, but it must be admitted that it is not very characteristic of this class of building, nor exactly expressive of the internal arrangements. It is a pity that so imposing an entrance is bottled up by the porter's box and telephone.



By Messrs. Tait & Whitelaw: First Floor.



By Messrs. Tait & Whitelaw: Elevation to Marylebone-road.

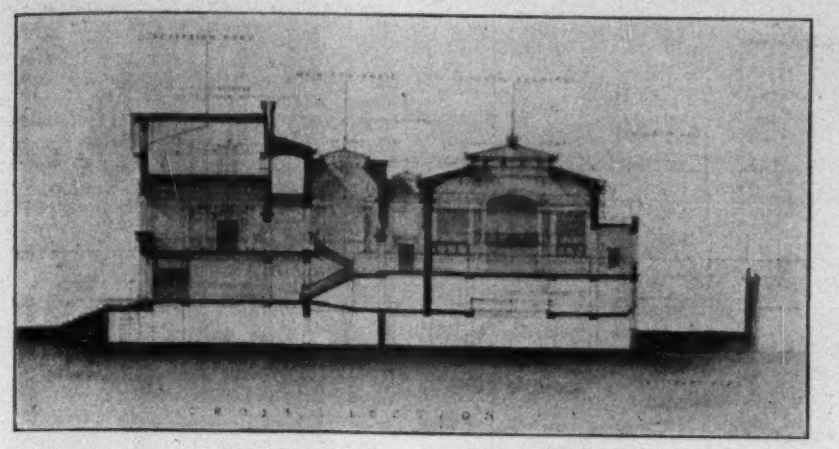
Messrs. Jemmett & McCombie's design is well laid out and well constructed, and this is adequately expressed in the elevations, in which the various units of the plan are emphasised in accordance with their relative importance.

Mr. William Flockhart has adopted the approved idea on plan, and his elevations and details are extremely pleasing, but they do not express with any exactitude the position of the internal units.

Messrs. Geoffry Lucas and T. A. Lodge, with C. A. Farey, submit an interesting design. The elevations which we illustrate are broad in treatment and good in scale.

Messrs. Charles Nicholas & J. Dixon Spain have a well-worked-out plan, which is the same variant of the approved idea as that adopted by Mr. Truelove.

Messrs. Leeming & Leeming's plan is



By Messrs. Tait & Whitelaw: Section.

on the same lines, but their elevations are not so pleasing.

Considering the large number of the designs and the short time allowed for their inspection, many interesting points in the various designs may have escaped our attention. It is impossible to refer in detail to all those which interested us from one point of view or another.

Messrs. W. H. Brown & S. H. Maw, W. & E. Hunt, H. Corlette, Castle & Warren, Crouch, Butler, & Savage, E. Fraser Tomlins, F. T. Verity, Wood & Hill, May & Perrin, George K. Wenyon, P. Dawson & R. Marson, Ewen Harper & Brother, Pearson & Millburn, and Mr. A. A. Conder submit designs of varying merit, all of which have some good quality or raise some point of interest to which we should have been glad to refer at greater length.

Although there are a few noteworthy exceptions, the general effect of the designs in this competition is to suggest that there is a great deal of first-rate ability and enthusiasm which is wasted for lack of a proper direction of its energies; that there are more competitiors who know how to draw a column or a pediment than there are those who know where and why such features should be used to assist the logical development of the idea.

[We should like to express our regrets to Messrs. Wallis & Bowden and Messrs. North & Robin, the authors of the designs placed second and third respectively, for the mistake which was made in our last issue in transposing the designs which they submitted. The design attributed to Messrs. Wallis & Bowden was by Messrs. North & Robin, who were credited with the design by Messrs. Wallis & Bowden.—ED.]

ARCHITECTURAL SOCIETIES.

Royal Institute of the Architects of Ireland.

An ordinary meeting of the Council of this body was held at No. 31, South Frederick-street, Dublin, on Monday last. The President, Mr. A. E. Murray, R.H.A., F.R.I.B.A., occupied the chair, and there were also present:—Messrs. F. Batchelor, J. H. Webb, Lucius O'Callaghan, W. Kaye-Parry, C. H. Ashworth, F. G. Hicks, F. Hayes, G. C. Ashlin, G. P. Sheridan, and C. A. Owen, Hon. Secretary.

Mr. Ashlin proposed a resolution of condolence with the relatives of the late Mr. James Rawson Carroll, Fellow of the Institute, and for many years a member of Council.

The draft report of Council for 1911 was read, amended, and adopted.

It was resolved to nominate Mr. W. H. Lynn, R.H.A., architect, of Belfast, as a fit and proper recipient of the Royal Gold Medal for the year 1912 in recognition of his long and distinguished services to architecture.

Nottingham Architectural Society: Reinforced Concrete.

At their meeting on Tuesday, the 21st ult., the Architectural Society of Nottingham invited representatives of the Nottingham and District Master Builders' Association, when Mr. Harry Burke, C.E., of Manchester, presented a paper on "Reinforced Concrete." The President, Mr. Evans, occupied the chair, and there was a very large attendance of members.

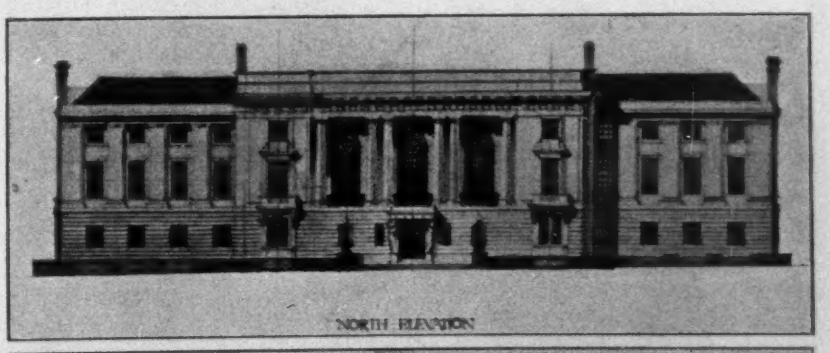
Mr. Burke, who has considerable experience in the design and erection of work generally in reinforced concrete, directed his remarks at the outset to the comparison between the architect and the consulting engineer's position, and that of the engineer for the various reinforced concrete systems, stating that the time had come when both the engineer and the architect should be in a position to examine any design sent in detail and become master over the work whilst in progress, which would ensure a thorough understanding and give him confidence. The lecturer then passed on to the advantages and disadvantages of the construction, and particularly dealt with reinforced concrete against steel-frame construction. Three examples he instanced to show where in ordinary architectural work the steel frame, etc., would be more advantageous; and, on the other hand, where reinforced concrete would be more suitable than either the steel-frame or ordinary construction. For engineering works Mr. Burke stated that the bay system, which modern practice shows is the test for economy and ensures convenience in the handling of material, was the most suitable. To construct such a work in reinforced concrete would not be as suitable as the steel frame, for the reason that the stanchions must be arranged so as to carry the crane and girders for the roof principals. The cost would be less than reinforced concrete and the building lighter both in appearance and structure. The work of erecting also would only take a portion of the time compared with reinforced concrete. He next dealt with house and villa work, showing that, as concrete has a cold nature, it would not be as satisfactory or as cheap as brickwork, and in the summer there would be the chance of condensation and sweating of the walls.

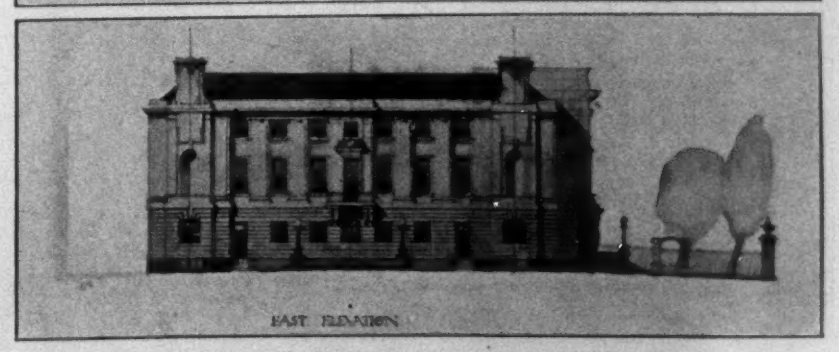
Mr. Burke then turned his attention to warehouse and large factory premises, where a building must be as fire-resisting as possible, and illustrated by diagrams where such a structure is far superior and cheaper in reinforced concrete. After dealing with the theory of reinforced concrete, showing how to get the neutral axis, moment of resistance, and the percentage of steel for various crushing stresses of concrete, models were shown illustrating a column and beam forming part of a perfect monolithic structure built up in reinforced concrete, which is practically impossible in any other construction. Great stress was laid on the method of stirruping reinforcement so as to ensure that all the bars are placed accurately in position before any concrete is put in. This gives facility for thorough inspection and satisfaction on this vital point. This was illustrated by a small model showing double reinforcement in a beam, with the necessary stirrups. Mr. Burke also spoke on the respective merits of the bond and plain bar, showing the advantages of a bonded bar and that the cost, if designed thoroughly, was no more than plain reinforcement, yet with a safer resistance. From this he dealt with the subject as regards rusting action on the reinforcement, the chemical action on a reinforced concrete structure, and also on the electrical influence which could act on such a structure. The lecturer afterwards dealt with the various aggregates suitable for reinforced concrete.

Passing from this, he then went very closely into the costs of reinforced concrete work which he had recently carried out, illustrating this work by a number of lantern views. The first example was the reconstruction of a two-story galvanising works which had to be as fire and acid resisting as possible. The works are 200 ft. long by 180 ft. wide, spaced into bays of 20 ft. by 18 ft. The height is 16 ft. 6 in. from ground floor to first floor, and from first floor to roof 14 ft. The loads to be carried were 2½ cwt. per square foot for first floor, with certain positions on this floor to carry acid baths of 20 tons weight, and hoods 40 ft. by 7 ft. had to be slung from the ceiling. The roof was designed for 1½ cwt., allowing in each case a factor of 4. The roof is a flat one, and a portion is kept level without fall for building pattern stores, etc. The superficial area is 8,000 yds. (two floors). The contract schedule price was 11,994*l*. In this amount the following items were allowed for, which cannot be spoken of as forming part of the building contract:—

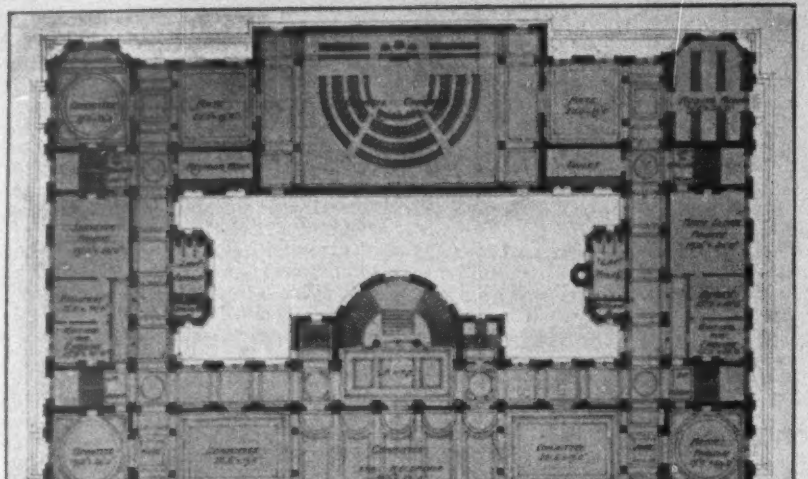
Cast-iron plates round baths	£500
Fans for ventilating	150
Hoods for fumes	320
	£970

—leaving the contract in round figures at 11,000*l*., which is equal to 27s. 6d. per superficial yard, or practically twopence per cubic foot. In

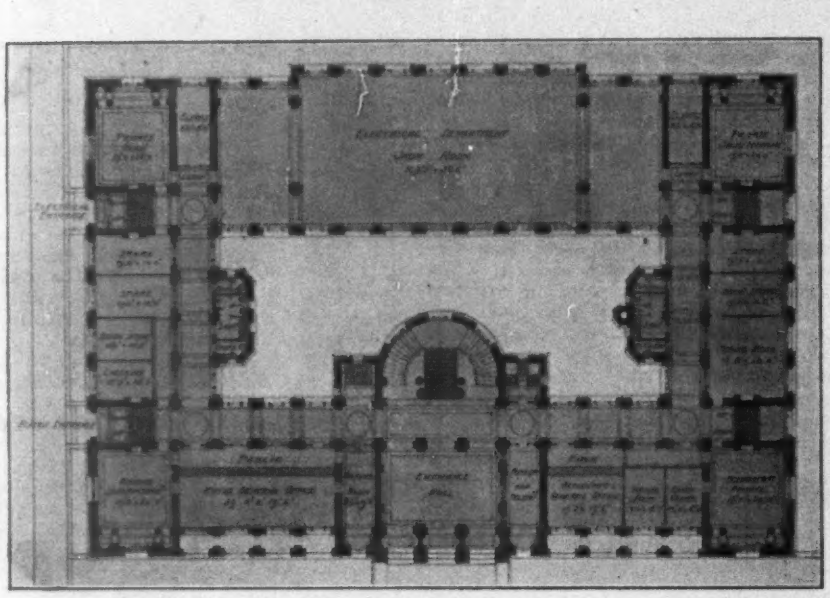




By Messrs. Lucas & Lodge and C. A. Farey: Elevations.



First Floor.



Ground Floor.

addition to the amounts included in the 11,000*l.*, 500*l.* was provided for terra-cotta and 150*l.* for treating the front concrete wall, half of which could be deducted if it was required to be cheapened.

The most interesting part of these works was the comparison of the three schemes so as to get the lowest price from open tender, and to show how each construction compares with the other. In the first case, a scheme was prepared on the steel-frame system, the whole to be cased in with concrete afterwards. A design was then prepared, making the steelwork of light sections, such as angles, tees, built up at the maker's yard ready for fixing at the site, and in this scheme full value was taken of the concrete for the compressional members. Later, it was designed in reinforced concrete, and the costs from actual tenders were :—

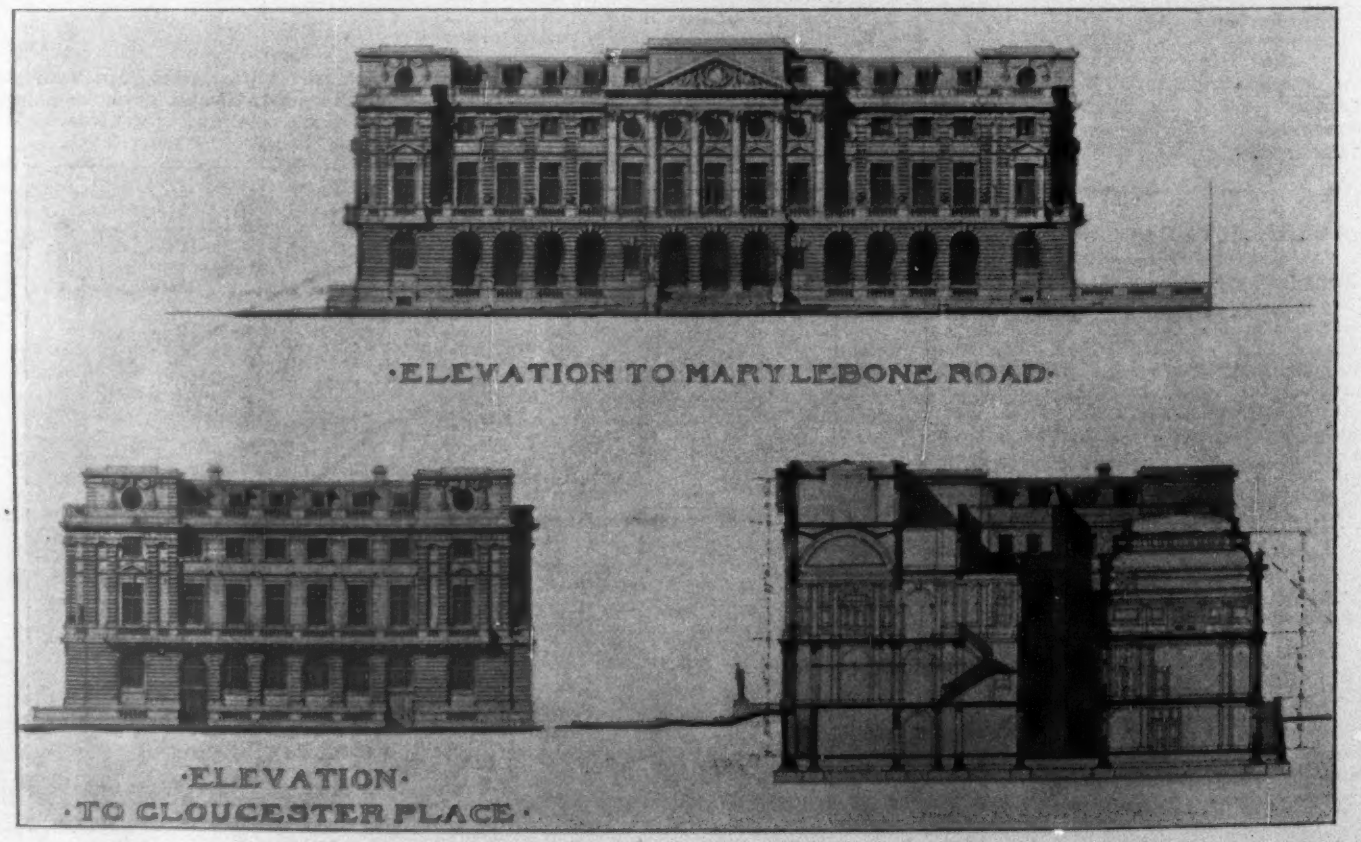
Reinforced concrete building	£11,994
Light steel frame	13,210
Steel frame cased in concrete	14,200

This clearly shows the saving in a reinforced concrete building where the building is of average size and the sheeting can be turned over. Another interesting example was a floor built over wire ovens and prepared for taking five stories. The load was 2½ cwt. per square foot, and including foundations, superstructure, 4 in. reinforced concrete walls cement finished, and all steel casements and fittings; the cost was 25*s.* per super. yard of floor covered, two floors only being erected.

Another work recently executed was a floor with a cantilever 10 ft. 6 in. long, built over ovens again, but in an existing building. The area covered was 800 yds., and the price when carried out for foundations 3 ft. below the ground was 19*s.* 6*d.* per super. yard.

For foundation work Mr. Burke gave a very interesting example which he was called in to act upon in Liverpool some eighteen months ago. A site had been chosen for a public building, and after the contractors commenced excavating they found that half the building would come upon a quarry partly worked, the other half on that which had been worked and had been filled up to 90 ft. The design eventually carried out was the sinking of two concrete piers 90 ft. to solid earth, and from these reinforced concrete beams, 7 ft. 6 in. deep by 24 in. wide, were carried and cantilevered so as to take the new building. The cost was about 1,000*l.*

Another interesting example some time ago was a scheme of precipitation and sludge tanks for treating 1,000,000 gallons daily of sewage. Space was very limited. A scheme of tanks,



Marylebone Municipal Buildings: Design by Messrs. Jemmett & McCombie. Elevations and Section. (*See page* 668.)

250 ft. by 12 ft. wide, with cast-iron plates for the sides and bottom, was prepared. The cost of this worked out to nearly 7,000*l.* A scheme of brickwork in cement was then arranged. In this the capacity could not be obtained without buying more land. Apart from the land, the price worked out to just over 6,000*l.* It was then decided to use reinforced concrete, having internal walls without ties 9 in. thick at the bottom, 6 in. thick at the top, 8 ft. high, and this was just over 4,500*l.* The work, when it was being constructed, was shown on the screen, and the author said he believed it was the first set of tanks to be constructed to give such a capacity in this country in reinforced concrete.

A very interesting example of pile and roadway work was given. This was designed for the English Velvet and Cord Dyers' Association. They wished to enlarge their works, but they were handicapped through having the river on one side, the goyt (for supplying the works with water) on the other, and beyond that the footpath and canal. On the one side the river was dammed and a reinforced concrete raft made. From this ran the columns and beams for forming a new roadway over the river and at the same time carrying the buildings to be erected. On the other side 12-in. concrete piles were driven to carry the new buildings. The super. yardage of the work done was 1,250 and the total cost was 2,800*l.*, including paving. The roadway was designed to take a 10-ton motor waggon.

Another work designed was a new roadway 36 ft. wide to carry two traction engines and boilers passing side by side. The suspended area carried by columns, beams, and slab was 610 yds., and an equal portion had retaining walls to support the made-up road. The cost of this work was 2,000*l.*

In railway bridge work one example was shown for Ambergate to carry one set of rails. This has one central pier in the river the width of which is about 120 ft. There are two 60-ft. spans and the width of the bridge is 12 ft. The cost, from tenders already sent in, is 850*l.*

Mr. Burke then dealt with the treatment of reinforced concrete for architectural effect. He stated that this must appeal to everyone as very interesting and worthy of consideration in view of the fact that as time goes on this particular method of construction must come more and more into favour. His own experience had been in buildings of the warehouse and heavy works type, where the first consideration was utility, with very little scope for elaborate design on the elevation; but at the same time the question had been considered and the following were his views on the subject:—

Taking the ordinary works or warehouse building with the orthodox piers, plinth courses, stone heads and sills, stone bands with cornices, parapet, etc., this type of building in reinforced concrete can be very ably and economically treated. The concrete columns on the outside walls would be designed as piers of the necessary proportions to suit design and the frame beams between same utilised as window-heads with continuous band. Between the framework a light 4-in. reinforced concrete wall could be constructed so as to be connected with the columns and the frame beams; the window openings and sills would, of course, be framed in the sheeting, and in case of any moulding, etc., being required the jambs would be left rough and the moulded work formed at another operation.

In the case of rustication or V being required in the blocking out of the piers, this can be done by ribs of timber being fastened on to the sheeting before same is fixed, care being taken to prepare the timber with a good wash and also that these strips are slightly bevelled so as to ensure clean striking. The ballast for this class of work should be very fine and of granite if possible. If the elevations are rubbed so as to ensure all voids being closed after the sheeting is struck, a very good job is assured and the difference from stone is hardly noticeable. If a combination of brick with stone dressings is required, the framework may be carried out exactly the same way, but the 4-in. reinforced concrete wall would be substituted by a 9-in. brick one and the introduction of moulded work or terra-cotta cornices is a simple matter. Suppose, then, the treatment of a classic building in reinforced concrete is reviewed. Consider the monolithic method. The building of the main walls would be a very simple matter, as any details in the way of cornices, blocking out, and the like, as well as panelling, could be easily executed in the sheeting. Then turn to a shaft with a Corinthian capital. You will see instantly that to carry out the shaft alone satisfactorily would be a very difficult job, and as far as the capital is concerned would be practically impossible.

This now carries us to the method of casting independent blocks, which would be placed in position in the same way as is now adopted with terra-cotta and reinforced concrete. The question of carving then arises. Taking it for granted that such a front could not be executed in concrete alone, the introduction of stone for reasons stated becomes necessary. Considering the combination of concrete and stone blocks, the two substances would have to be matched both in texture and in colour to be at all satisfactory. This, of course, could be done with care, but, supposing that a suitable appearance of the work on completion be attained, we must not lose sight of the probable change that would take place through the exposure to weather and general atmospheric conditions. From this the architect would then have to decide whether it would be worth while taking the risk (which would certainly exist) of adopting reinforced concrete with the combination of stone to save the extra cost which an entire stone front would incur.

In conclusion, Mr. Burke illustrated by lantern slides many examples of work he had carried out.

The lecturer was accorded a hearty vote of thanks.

An interesting discussion followed. In reply to the questions, Mr. Burke stated that he always specified the best English cement to be properly aerated and slow-setting. He did not like coke breeze or slag for the aggregate. He preferred broken bricks. The concrete in the proportion of 3 : 2 : 1 should be very liquid and well rammed. Although theoretically spiral reinforcement was best, he preferred to use ¾-in. bent angle rods to connect the vertical bars. It was not necessary to paint the steelwork previous to encasing it. He urged builders when tendering to allow for plenty of strong timber for casing—at least 33 per cent., as, although the sides could usually be struck after ten days, the bottoms supports sometimes took three or four weeks.

At the business meeting previous to the lecture two new members and one new Associate were elected.

The Leeds and Yorkshire Architectural Society.

A general meeting was held on November 30 in the Society's Room at the Leeds Institute, the President, Mr. Sydney D. Kitson, M.A., F.R.I.B.A., in the chair.

A very interesting paper was read by Mr. Alfred Mattison on "Old Leeds." He described its growth and development from a village up to the city of the XIXth century, illustrating his text with many slides of old documents and engravings, etc.

Mr. W. H. Thorp, F.R.I.B.A., in proposing a vote of thanks, deplored the loss of many of the historical fabrics so reminiscent of the early days, and remarked upon the Red Hall, Guilford-street, which is at present undergoing drastic changes in the way of renovation and alteration. The motion was supported by Mr. C. B. Howdill, A.R.I.B.A., who spoke of the lack of civic spirit shown in Leeds, especially with regard to architectural development

GENERAL NEWS.

Professional Announcements.

Owing to the reconstruction of Catford Bridge, and the consequent rebuilding of the head offices of Messrs. Norfolk & Prior, architects and surveyors, at 4, Station-buildings, Catford Bridge, the firm have temporarily removed to No. 7, Station-buildings, where business is being carried on as usual.

Mr. W. H. Johnson, jun., civil engineer and architect, has removed his office from 20, George-street, to 33, York-place, Edinburgh, where he has taken over the old-established business of Messrs. Menzies & Cockburn, civil engineers and architects. After this date he will continue the business under the firm name of Menzies, Cockburn, & Johnson. His new telephone number is Central 2621.

Mr. George P. Allen, architect and surveyor, has removed his offices from Dacre House, Arundel-street, Strand, to No. 32, Craven-street, Charing Cross, London, W.C.

School Accommodation.

It is estimated that the capital cost of providing the additional school accommodation necessary to carry out in London the County Council's ideal of "40" and "48" classrooms would be 2,000,000*l.* Increased maintenance expenditure would be involved on the completion of the scheme to the amount of 400,000*l.* per annum, and additional debt charges of 110,000*l.* per annum.

The Dering Collection.

On December 12, 13, and 15, Messrs. Norris & Duvall, of Hertford, will sell at auction the contents of Lockleys, near Welwyn, the residence of the late Mr. G. E. Dering. The collections comprise some fine old furniture of the Adam, Sheraton, and Hepplewhite periods, with earlier specimens, marble Italian statuary, and Dresden, Sèvres, and Berlin china. The pictures by old masters will be sold by Messrs. Christie on December 16, at their rooms; it seems they have as yet been unexhibited, and they include examples of the Dutch, German, and Flemish schools, with Hoppner's portraits of his wife as "The Primrose Girl," and Thomas, second Earl of Chichester.

Rome to Ostia Railway.

A French company has laid before the Municipality of Rome, who, it is said, are in favour of the project, proposals to construct an electrical railway from Porta San Paolo to Ostia, with its line underground between the terminus in Piazza Venezia and the Palatine-hill, and with a sunk cutting to Porta San Paolo. The cutting beyond the Palatine-hill will traverse a greater portion of the Zona Monumentale, that contains many relics of ancient Rome hitherto unexplored, and representations are made by Commendatore Boni against the probable destruction of antiquities involved by the scheme as planned at present.

Overstrand Church, Norfolk.

The Society of Antiquaries have passed unanimously a resolution that any proposal to restore the ruined church of Overstrand is undesirable and would result in the disappearance of much of the evidence of antiquity which still remains, and that a preferable course would be to secure the ruins as far as possible from the ravages of ivy and weather without attempting to graft new work on to them. The original church of St. Martin, distant two miles from Cromer, was, together with much of Cromer itself, destroyed by encroachment of the sea. The present church was built *temp.* Richard II.; the chancel and part of the nave fell into ruin; the remaining portion of the nave was adapted for worship in 1785. A new church was built in the churchyard forty-five years ago.

Carnarvon Castle.

A Committee of the Town Council have formulated proposals for rebuilding, with the consent of the Office of Works, the banquet-hall for purposes of a National Art Gallery for Wales, with a branch of the National Library and Museum, in commemoration of the Investiture of the Prince of Wales.

Bills (London) for the Session 1912.

The Commissioners of Works will apply in the course of next session for powers to enable them to acquire properties in London for a further extension of the Patent Office on the Took's-court and Furnival-street sites, and in respect of the Institution of Civil Engineers, Great George-street; also to take some property, forming portion of Clifford's Inn, situated between Fetter and Chancery lanes, for the Public Record Office; and to take property lying between Montagu House, Whitehall, Horse Guards-avenue, Victoria-embankment, and the Banqueting House (where are now the Board of Trade Offices). The Corporation of the City of London will introduce a Bill for the construction of subways for foot-passengers beneath, and at the junction of, Cannon, Bread, and Queen

streets, with a subway junction to Queen Victoria-street and Bow-lane, and from Bow-lane to Mansion House Railway-Station. They also propose to seek relief from obligation to maintain and carry out their London riverside fish market at Shadwell with powers to dispose of the site (being the proposed site of a King Edward VII. Memorial and Park), to obtain certain enabling powers relating to the purchase of Spitalfields Market by Stepney Borough Council, and to establish a superannuation and pension fund for the officers and servants of the Corporation. The London Electric Railway Company's Bill relates to the making of a railway from Maida-vale, Paddington, to Willesden; a stairway from Argyll-street to Oxford-street; and subways, in Southwark, at London-street and Newington-causeway, and St. George's and London roads, to communicate with their Elephant and Castle Station tunnel and the Southwark Council tunnel.

Calton Hill, Edinburgh.

A paper on "The Calton Hill: Past, Present, and Future," with special reference to the intended completion of the Scottish National Monument, was read by Mr. Henry F. Kerr, A.R.I.B.A., at a meeting held on the 1st inst. in the hall of Moubray House, High-street, Edinburgh. Mr. Kerr said that with its fine distance outline and its natural facilities for magnificent views the Calton Hill would, if situated in any wideawake continental capital, be made a chief sight of the city. In the early XIXth century it seemed to be the intention to make the Hill an open-air Valhalla, to keep the memories of the great ever present. Having sketched recent proposals with reference to the improvement of the Hill, he showed how it could be made a favourite resort. Edinburgh had often been compared to Athens, and there were many resemblances, notably in the two hills, the Acropolis and the Calton Hill, immediately overlooking the cities. It was this resemblance, doubtless, that decided the promoters of the National Monument to make the Calton Hill the site of the reproduced Parthenon. The approach to the Calton Hill from Princes-street and almost all the buildings upon it were all of good classic design, and when on the Hill one felt in a classic atmosphere. Of the National Monument only twelve of the forty-six columns of the reproduced Parthenon had been completed, and it was now the ambition of many to see the complete building there as a memorial to the good and great of all lands. Fortunately for the exterior, we had every detail necessary for accurate reproduction, in which all the delicate refinements of the beautiful building would be included. With faithful study and the interested and skilful help of selected workmen, the great task could be brought to a successful issue, and the Calton Hill, which had overlooked the city during its centuries of progress, would at last be nobly crowned.

Lower Thames Valley District Surveyors' Association.

The ordinary monthly meeting of this body was held at Twickenham Town Hall on Saturday last, the President, Mr. Edward Willis, Assoc.M.Inst.C.E., F.S.I., Engineer and Surveyor, Chiswick, occupying the chair at a well-attended meeting. The adjourned discussion on Mr. J. A. Webb's (Surveyor to the Hendon Rural District Council) paper, entitled "Notes on Drainage and Sewage Disposal in Small Towns and Villages," was resumed, much interest being taken in the discussion, many of the members taking part therein.—Owing to the amount of business which is dealt with by the Association, it has been found necessary to pass the following resolution:—That all members desiring information shall be entitled to ask any questions referring to municipal engineering, surveying, and administration, but a copy of such questions shall be presented to the President or Secretary not later than half an hour after the commencement of an ordinary meeting."—The discussion on notes on "The Latest Sewer and Drain Definition Approved by Parliament," by the President, was postponed until the next meeting owing to the pressure of time.

BOOKS.

Structural Engineering. By JOSEPH HUSBAND, A.M.Inst.C.E., M.Soc.C.E. (France), and WILLIAM HARBY. (London: Longmans, Green, & Co. 1911. Pp. 396, with 337 diagrams. 7s. 6d. net.)

THIS treatise fully deserves a high place among text-books dealing with the important subject denoted by its title. The authors have endeavoured to deal with the design of frequently occurring structures from the theoretical and practical points of view. Not content with a mere statement of the main outlines of the theories involved, they have extended the application of such theories to the practical design of numerous structures and structural details of everyday occurrence.

The volume appropriately opens with a short summary of the properties of structural materials and the weights of details, but it should be understood that the extended knowledge on these subjects which is necessary to the structural designer must be obtained from treatises specially devoted to materials of construction. The succeeding chapters on "Loads and Working Stresses" and "Bending Moment and Shearing Force" are good examples of lucid treatment, and the next two chapters on "Beams" and "Columns and Struts" are equally worthy of commendation. Beyond all these introductory chapters we come to the more practical part of the work, relating to the design of built-up girders, roofs, some details of buildings, and masonry structures of various kinds.

As a general rule numerical data and arithmetical methods have been adopted in preference to analytical methods, and mathematical formulæ have been avoided wherever possible. The discussion of column strength is somewhat more extended than is customary, a feature deserving notice being the incorporation of material from the exhaustive investigation by Mr. J. M. Moncrieff, M.Inst.C.E. A brief section on tall building construction will be found of particular value to architectural students.

The book is one we have great pleasure in recommending to all students of structural design, and we feel sure that it will be widely appreciated by young architects and engineers alike, although naturally somewhat more suited to the needs of the latter.

The Historical Growth of the English Parish Church. By A. H. THOMPSON. (Cambridge University Press. 1s.)

THIS book should be read in conjunction with that on the ground plan of the parish church by the same author. The illustrations are good, especially those of the Cirencester porch, of the font cover at Well, Yorkshire, of the rood-screen at Banwell, Somerset, and of the Easter sepulchre at Howton, Notts. The porch at Cirencester, Perpendicular in style, has two stories above the ground floor, and was used by the guilds.

The chapter on the furniture of a mediæval church is very interesting. It includes mural paintings, stained glass, carved and painted woodwork, etc.

The author's views, undoubtedly correct, with regard to the altar, should be carefully read. The arrangement of the English altar was very different from that now prevalent on the Continent.

The cross and flower vases now so usual among us were seldom to be seen. The cross was not necessary, since, as a rule, a crucifix formed the centre of the design behind the altar. Flowers and sweet-smelling herbs were strewn in front at certain seasons, and two lighted candles were placed on the altar at mass.

During the last few years much more study has been devoted to ecclesiology, and in several churches the old system has been adopted.

We think the author should either have omitted post-Reformation work entirely, or, better still, have devoted a special chapter to it. The work of Wren or Grinling Gibbons deserves more than a passing word.

Considering how fully the ground plan was dealt with in the last volume, four more places in this seem unnecessary. The great difference between mediæval and modern work is well emphasised. The mediæval was the work of the whole activity of the age; the modern is the result of individual thought.

The closing words on "restorations," though axioms to the profession, will be of great importance in impressing on "the man in the street" the proper value of these works of "the men of old." It is for him that this type of book is meant. In drawing attention to the fact that even the often-despised XVIIIth-century work usually has much that is beautiful good service is done.

The Bibliography at the end of the book is good, and the work throughout is sound, interesting, and useful.

BOOK RECEIVED.

SHOULD WE STOP TEACHING ART? By C. R. Ashbee. (London: B. T. Batsford. 3s. 6d. net.)

CORRESPONDENCE.

An Apology.

SIR,—I am instructed by the Board of Directors of Bell's United Asbestos Company, Ltd., to express to you their regret that a circular containing the text of a letter addressed to your paper by the Chairman of the company on June 6 last, with reference to the article on the subject of "Asbestos Cement Building Materials," which appeared in your issue of May 26, 1911, together with a copy of the article in question, should have been issued with a reproduction of the heading of your paper without your assent having been first obtained thereto.

The company have destroyed the block of the title and design of the *Builder*, and also all copies of the circular in hand, and undertake that no further issue of the circular shall take place. I may add that I was absent in America when the circular was issued, and consequently it was not brought to my notice, as otherwise would have been the case.

It only remains for me again to express my company's regret that the circular was issued in a form to which you have felt it necessary to take exception. C. S. BELL,
Joint Managing Director of Bell's United Asbestos Company, Ltd.

Licentiate R.I.B.A.

SIR,—Would it not appear that the time is now ripe for the Associate members of the R.I.B.A. unanimously to protest against the continual neglect of their interests by the Council of that body? Few members of that Institute object to the creation of Licentiates as the only means to obtain Registration; but there would certainly appear to be no reason why members of that class, having been elected, should be able to proceed to the Fellowship without having to pass the same tests as those Associates have undergone.

By the new examination, which will shortly be in vogue, Licentiates will be able to secure this advantage without any of the expense and study which practically all Associates have undergone.

The President, it will be remembered, in his opening address regretted that more Associates did not "advance" to the Fellowship. They would surely be well advised to do nothing of the sort.

The formation of a Guild of Associates to ensure fair play, which they cannot obtain at present by their inadequate representation on the Council, would seem to be highly desirable. ASSOCIATE R.I.B.A.

SIR,—"Enquirer" and "Second Enquirer" are quite correct in their assumption that the necessary age qualification will appeal very strongly to a considerable number of the younger architects, who have in every other respect all the necessary qualifications.

This is particularly hard in the case of the managing assistant of, say, twenty-six years of age (who, by the way, is perhaps responsible for the bulk of the work turned out by his office), and who might reasonably expect to commence practice on his own account within the next year or two.

Naturally, the examination question immediately presents itself. The answer is this: As it is the practice nowadays (I speak from

provincial experience), owing to the fluctuation of work, to understaff rather than overstaff the drawing office, the slightest rush of work, or, say, a competition, is immediately felt by this assistant, who, I suppose, quite reasonably, is expected to devote a considerable portion of his own time to the interests of his office. In fact, some principals make this a condition of engagement. I know of instances where assistants give up something like 75 per cent. of their own time to office work.

How, then, sir, could such an assistant reasonably find the time to prepare for the Institute exams? I am told that it has been tried by such men and found impossible.

And yet an assistant so placed cannot enter the Licentiate class. Will he be registered in the event of the Bill being passed?

Might I take the liberty of suggesting to "the powers that be" that, instead of an age qualification, there should be an experience qualification, with ten years as the minimum?

THIRD ENQUIRER.

Architectural Assistants at the Office of Works.

SIR,—The sympathetic reply given by Mr. Dudley Ward to Mr. Philip Snowden, and reported in your last issue, is very encouraging to those who have been waiting many years for some improvement in position. But the First Commissioner had not been correctly informed when he replied that he was "not at all sure there was any general desire on the part of those gentlemen who might be considered eligible to be placed on the established list, with the consequent sacrifice of income which would be demanded by the regulation."

As to the desire for establishment, a memorial was presented fifteen years back! The Principal Architect then recommended that all managing men should be established. If his recommendation had been adopted, and he is certainly the best judge of men's abilities, those men would now be receiving about double their present salaries. But nothing was done. Many applications and recommendations have been made since, but where merely merit was concerned it was always "nothing done."

As to the suggested sacrifice of income, there are middle-aged men, doing good work, who have been over twenty years in the office, only receiving some 200*l.* a year. This is the commencing salary of a "permanent" man, who may be only twenty-three years of age. Also, they rise so rapidly that many who have been only a few years in the service are receiving 350*l.*, and some who have only been ten years 500*l.* a year. There is no question of ability, simply they are "permanent."

Consistency and justice would therefore ask for a considerable advance, not a reduction, of salary. If the matter had been taken in hand when first recommended by the Principal Architect there might have been some reason then for reducing salaries.

EFFICIENCY.

SIR,—Your correspondent "X.," in last week's issue, is somewhat behind the times when he is wondering whether the First Commissioner of Works is aware of the conditions under which the "Architectural Assistants" work, seeing that on the 24th ult. he gave the reply to Mr. Philip Snowden in the House of Commons that he not only knew of the unsatisfactory condition and want of status of these professional men, but that "he would consider their claims to be put on the established list."

The First Commissioner, of course, is not to blame, for he relies upon the representations, or misrepresentations, that are made to him by those in authority under him, and hence his inactivity to do justice in the part. Also, "X.," in speaking of ten years' service, overlooks the fact that the class termed "Architectural Assistants" (formerly "Draughtsmen") have only been in existence since February, 1907, when they started under this new title and rule that the age limit to sit for the Civil Service Examination, then thirty-five, be altered back to thirty, and, further, only those were to be retained of the age of thirty and over whose services were regarded as being deserving of a Technical Certificate of Efficiency to be signed by their immediate chief.

Now at this time there were some twenty-four thus certified and retained, out of which number some ten were aged from thirty to thirty-five, who, but for the setting back of the age limit, hoped to sit for the Examination, and thus they were deprived of a privilege they previously enjoyed, and the prospects of all the above were over.

But the danger of preferential treatment again "looms large" by the reply of the First Commissioner above referred to, who spoke of "those gentlemen who might be considered eligible," and this must be opposed "tooth and nail," if only on account of the friction bound to ensue between those similarly certified and placed on, or not placed on, the establishment. Now, if it be impossible to deal similarly with the entire class, which includes those who have since attained the age of thirty, and are certified, at the very least it must be all the above-mentioned portion of the class—or none. FAIR PLAY.

Microscopical Examination of Building Material.

SIR,—Your correspondent Mr. F. J. Barnes has evidently been unfortunate in his laboratory experimental work, which is now generally admitted as being a most valuable aid to the practical man acquainted with all the facts of the case. When theory apparently does not "square with practice" it is usually due to incomplete knowledge of facts, or to the ignoring or suppressing of some of them. It is needless to contradict his statement that Portland stone has been found to withstand the atmosphere of Glasgow better than other building material, as it is generally known that Portland stone was used for the first time in Glasgow on an important scale only two years ago, and, although it was fluated, it is already showing signs of decay. Then his idea of "seasoning" stone seems to correspond rather to the use of the term as applied to wood, an operation totally different from the seasoning of stone, which is generally taken to be what he calls "case-hardening." The classical example of the seasoning of the stone of St. Paul's for three years after dressing need hardly be quoted, and the operation of dressing after seasoning should rather be called "unseasoning," since it removes the surface skin constituting the main asset of the Portland stone when seasoned. The somewhat ambiguous case quoted as being somewhat anomalous would doubtless have been readily explained by an examination of the two types of Portland stone microscopically, which has evidently not been done. Like most other things, there are several varieties of Portland stone, and there are perhaps even greater varieties in the hygroscopic conditions of the atmosphere, as well as in the weather experienced at the three places named.

Without examining specimens of the two stones, both normal and after exposure to the action of the atmosphere in the different towns, it is rather difficult to say exactly why the difference occurs. However, it is quite credible that the hard, dense variety of roche stone, which is least affected by acid, may quite well be attacked severely by the large amount of acid in the air, favoured by the atmospheric conditions of Birmingham; whereas, such a stone would resist the sooty atmosphere of London to a greater extent, and be almost immune from the physical erosion of the wind and rain at Portsmouth. On the other hand, the soft, open-grained and therefore porous variety now commonly worked would be readily broken down by the salt-laden breezes of Portsmouth without being chemically acted upon to a disastrous degree. This same material could conceivably get such a coating of soot in London as to protect it, at least partially, against the only moderately acid atmosphere of the metropolis; and the greater quantity of acid got from the Birmingham air might be more largely removed from the open pores by moisture before serious damage was effected. However, this last condition is highly problematical, and decay would certainly supervene after a time. As a rule, anyone now concurring in the "hang theory" idea condemns himself, and confesses to partial ignorance. J. S. GLEN-PRIMROSE.

Port of London Offices Competition.

SIR,—Adverting to the letter you were kind enough to publish last week, may I also, with your permission, ask all competitors to join in a request that the perspective view be postponed to the final competition, and that the three elevations and two sections be reduced to one each?

This should be done by or before the 16th inst. L.

A Correction.

SIR,—As has been said, "We live to learn," but the letter of one of your correspondents tells us, I think for the first time, that the statue of Achilles is a memorial of the Crimean War. I fancy some of us recollect it standing where it is some years before that event. E. SWINFEN HARRIS, F.R.I.B.A.

The Inventor of Portland Cement.

SIR,—I see in the newspapers that Mr. I. C. Johnson, the manufacturer of Portland cement, is dead. He is spoken of in more than one paper as the inventor.

I have always understood that Joseph Aspdin, a brickmaker, of Leeds, was the first to manufacture Portland cement. This was, I believe, in 1813. C. F. M.

[**** It certainly is not established that the late Mr. I. C. Johnson was the inventor of Portland cement.—ED.]

Cost of Joinery.

SIR,—I am surprised that "F. M.'s" complaint ever found its way into your columns, and I am still more astonished that J. F. Parker should show such infantile innocence as to the anonymous letters received daily by employers of labour on kindred subjects to "F. M.'s."

I have been a foreman or manager for fifteen years of a cabinet joinery works, employing 300 to 400 men, and have my first tip yet to get. Under modern conditions, a foreman who conducted his establishment as "F. M." says would not last over the first quarter. I should like to ask "F. M." how he got to know that the foreman faked the time-sheets, as in a modern establishment the time is taken each night and written up by clerks, not under the foreman's supervision. I have had to get rid many times of the "expert and experienced" men that "F. M." speaks of—men whose experience unfits them for modern conditions of work. In a word, a foreman must surround himself with the men who are most ductile and who will follow his lead.

LIVERPOOL.

SIR,—I should think the experience of "F. M." has been very exceptional. Very few foremen out of the large number of that body composite are corrupt; there is, of course, the exception. It has occurred to me, however, more than once that the autocratic powers invested in foremen, by which they are allowed to take on or discharge men, might be curtailed with advantage. A foreman is but human; he has his failings—quite perceptible ones sometimes. He might think to himself, of any particular man, "I don't like that man; I'll sack him," and do so, and the man could not appeal against his treatment, there being no one to appeal to. Or again, when one of his acquaintances apply for a job he might think, "This man belongs to my branch; I must give him a job." In either case where does the employer's interest come in? W. I.

INTERCOMMUNICATION COLUMN.

Hot Water and Galvanised-Iron Cisterns.

SIR,—The experience of your correspondent, "J. A. C.," is interesting in more ways than one. Presumably it is a closed cylinder which he refers to, not a cistern, as he states. There should be no hot water in the cistern. One would like to know the metal used for the circulating pipes. As your correspondent does not refer to any difficulties with them, they must be something different from galvanised iron. There are apparently two forms by which he can permanently cure the complaint—either by replacing the galvanised-iron cylinder by a copper one, or by obtaining a plant which will automatically either eliminate or neutralise the destroying influence in the water. S. WHITMORE ROBINSON.

EDITORIAL SUMMARY.

The leading article this week is devoted to an illustrated account of the town of Amalfi.

In "Notes" (p. 664) will be found some observations on: "Southwark Bridge"; "London Institution, Finsbury-circus"; "The New Examiner of Plays, and After"; "An Artist and an Archæologist"; "The Mansion House"; "The King Edward Memorial, Liverpool"; "The King Edward Memorial."

To the Marylebone Municipal Buildings Competition we devote another article, accompanied by some additional plans and details (p. 665). All the illustration plates this week are given up to the designs.

Short notices of meetings of the following architectural societies will be found on p. 669: "Leeds and Yorkshire Architectural Society"; "Nottingham Architectural Society"; "Royal Institute of the Architects of Ireland."

Book Reviews (p. 672) include: "Structural Engineering"; and "The Historical Growth of the English Parish Church."

In Correspondence Column (p. 672) will be found letters on: "An Apology"; "Microscopical Examination of Building Material"; "Port of London Offices Competition"; "A Correction"; "The Inventor of Portland Cement"; "Cost of Joinery"; "Licentiate R.I.B.A."; "Architectural Assistants at the Office of Works."

Our Monthly Illustrated Review of Construction (p. 675) contains: "The Regent-street Polytechnic"; "The Design of Tall Chimneys"; "Colouring of Paper."

The Building Trade Section (p. 680) includes: "Continuity of Employment in the Building Trade"; "Cement"; "Prime-Cost Contracts"; "Projected New Buildings in the Provinces"; "Applications under the Building Acts, 1894-1909," etc.

A report on the condition of the Mansion House appears on p. 682.

Legal Column (p. 683) includes comments on: "Repairing Covenants in Leases"; "Fire Precautions: Appeals to Tribunal of Appeal"; "Laying Out a New Street."

In Law Reports (p. 684) will be found the following: "Westminster Nuisance Case"; "Action against Builders and Contractors"; "The Validity of an Architect's Certificate."

MEETINGS.

FRIDAY, DECEMBER 8.

Aberdeen Architectural Association (in the *Northern Arts Club*).—Mr. G. M Fraser on "A Historical Tour in Aberdeen." Illustrated by lantern slides. 7.30 p.m.

Glasgow Technical College Architectural Craftsmen's Society.—Mr. John Crawford on "The Duties of a Foreman Mason."

Northampton Polytechnic Institute, E.C. — Annual prize distribution. 6.30 p.m.

SATURDAY, DECEMBER 9.

Incorporated British Institute of Certified Carpenters (*Carpenters' Hall, London-wall, E.C.*).—Annual general meeting. 5.30 p.m.

MONDAY, DECEMBER 11.

The Architectural Association (*combined meeting with Camera, Sketch, and Debate Club*)—Mr. Alan E. Munby, M.A., on "Is the Texture of Materials a Fetish?" 7.30 p.m.

University of London (*Victoria and Albert Museum*).—Mr. Banister Fletcher on "The Louvre and the Tuileries, Paris." 5 p.m.

The Incorporated Clerks of Works' Association (*Carpenters' Hall, London-wall*). — Paper by Mr. F. G. Dowson (Messrs. Roberts, Adlard, & Co.) on "Roofing, Slates, Tiles, etc.: Origin, Quarrying, Productions, and Practical Uses." 8 p.m.

Royal Society of Arts (*Cantor Lectures*).—Professor Vivian B. Lewes on "The Carbonisation of Coal"—III. 8 p.m.

Surveyors' Institution.—Mr. W. A. Haviland on "The Burden of Upkeep on Rural Estates and its Relief under Section 69 of the Finance Act, 1910." 5 p.m.

TUESDAY, DECEMBER 12.

The Institution of Civil Engineers (*Ordinary Meeting*).—Paper by Mr T. Ernest Stanton, D.Sc., M.Inst.C.E., and Mr. J. Robert Pannell.

University of London (*British Museum*).—Mr. Banister Fletcher on "Origin and Evolution of the Corinthian Order." Lantern illustrations. 4.30 p.m.

Nottingham Architectural Society.—Mr. W. H. Taylor, F.S.I., Lic.R.I.B.A., Barrister-at-Law, on "The Law Relating to Building Schemes." 8 p.m.

WEDNESDAY, DECEMBER 13.

Junior Institution of Engineers (*at the Institution of Electrical Engineers, Victoria-embankment*).—Lecture on "Steel Specifications considered Commercially," by Major H. B. Strange, R.A., ret., of Sheffield. 8 p.m.

Northern Architectural Association.—Paper by Mr. J. Hall. 7.30 p.m.

THURSDAY, DECEMBER 14.

Society of Architects.—Mr. G. A. T. Middleton on "Alexandria: Its Place in Architectural History." 8 p.m.

Concrete Institute.—Mr. G. C. Workman on "Some Recent Works in Reinforced Concrete." 8 p.m.

Sheffield Society of Architects and Surveyors.—Mr. Chas. Pawson on "Manufacture of Paper, and Methods of Printing."

Institution of Electrical Engineers.—Mr. A. E. Seabrook on "Residence Tariffs." 8 p.m.

COMPETITION NEWS.

Manchester Art Gallery.

We understand that Messrs. Crouch, Butler, & Savage, of Birmingham, have been awarded the first place in this competition. It will be remembered that ten competitors in the first competition were invited to complete their designs. We hope to illustrate the various designs fully in our next issue.

Cottages at Middlesbrough.

In the competition for six cottages for the staff of the Cleveland Asylum Mr. T. Edwin Cooper, F.R.I.B.A., the assessor, has made the following award:—

First and third, Mr. James Forbes, of Middlesbrough.

Second, Messrs. J. M. Bottomley & G. T. Wellburn, Middlesbrough.

Twenty-three sets of plans were submited.

Society of Architects.

The Travelling Studentship of the Society of Architects, open to students under twenty-eight years of age, on the Register of the Society, will be awarded in 1912 to the author of the best design for a town hall, to cost, exclusive of furniture and fittings, not more than 30,000*l*. Conditions appear in the December issue of the *Journal*, in which are reproduced some of the drawings made by the Travelling Student for this year, Mr. J. R. Leathart.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. E. White, Chairman, presiding.

LOANS.—The Finance Committee recommended and it was agreed that loans should be made to borough councils as follows:—Chelsea, 3,700*l*. for street improvement; Fulham, 9,280*l*. for electricity undertaking; Hackney, 817*l*. towards the extension of an open space, and 4,364*l*. for electricity undertaking; Holborn, 8,000*l*. for street lighting; Southwark, 3,630*l*. for street improvement; and Wandsworth, 4,000*l*. for street improvement.

ASYLUMS.—Various alterations and additions to the general storeroom at the Hanwell Asylum are to be made, and a covered way has been erected at the Manor Asylum.

SYNAGOGUE.—It is proposed to erect a new synagogue at the rear of Nos. 124 and 126, Green-lanes, Stoke Newington, N.

BOILER-HOUSE.—The erection of an addition to the boiler-house at the Neckinger electricity station, Spa-road, Bermondsey, is to be carried out.

NEW COUNTY HALL.—In answer to a question put by one of the members of the Council, it was stated that the County Hall would probably be ready for occupation in 1916.

ILLUSTRATIONS.

Marylebone Municipal Buildings.

WE illustrate this week a detail of Mr. Cooper's design, which was placed first in the competition, to which we refer at length on pp. 665-669. Our second and third plates show features of some of the other designs.

LIGHTS ON VEHICLES.

THE attention of railway companies, carriers, tradesmen, and other persons concerned is directed by the Commissioner of Police of the Metropolis to the provisions of the Lights on Vehicles Act, 1907 (7 Edw. 7, ch. 45), which provides that:—

"Every person who shall cause or permit any vehicle to be in any street, highway, or road, to which the public have access, during the period between one hour after sunset and one hour before sunrise shall provide such vehicle with a lamp or lamps in proper working order and so constructed and capable of being so attached as when lighted to display to the front a white light visible for a reasonable distance. If only one lamp is so provided it shall be placed on the off or right side of the vehicle, and, if the lamp or lamps are so constructed as to permit a light to be seen from the rear, that light shall be red.

He shall also, if the vehicle is used for the purpose of carrying timber or any load projecting more than 6 ft. to the rear, provide the same with a lamp or lamps in proper working order and so constructed and capable of being so attached as when lighted to display to the rear a red light visible for a reasonable distance. . . .

The Act will be strictly enforced by Police, and offenders are liable on summary conviction for each and every such offence to a penalty not exceeding forty shillings, and in the case of a second or subsequent conviction to a penalty not exceeding five pounds."

FIFTY YEARS AGO.

From the *Builder* of December 7, 1861.

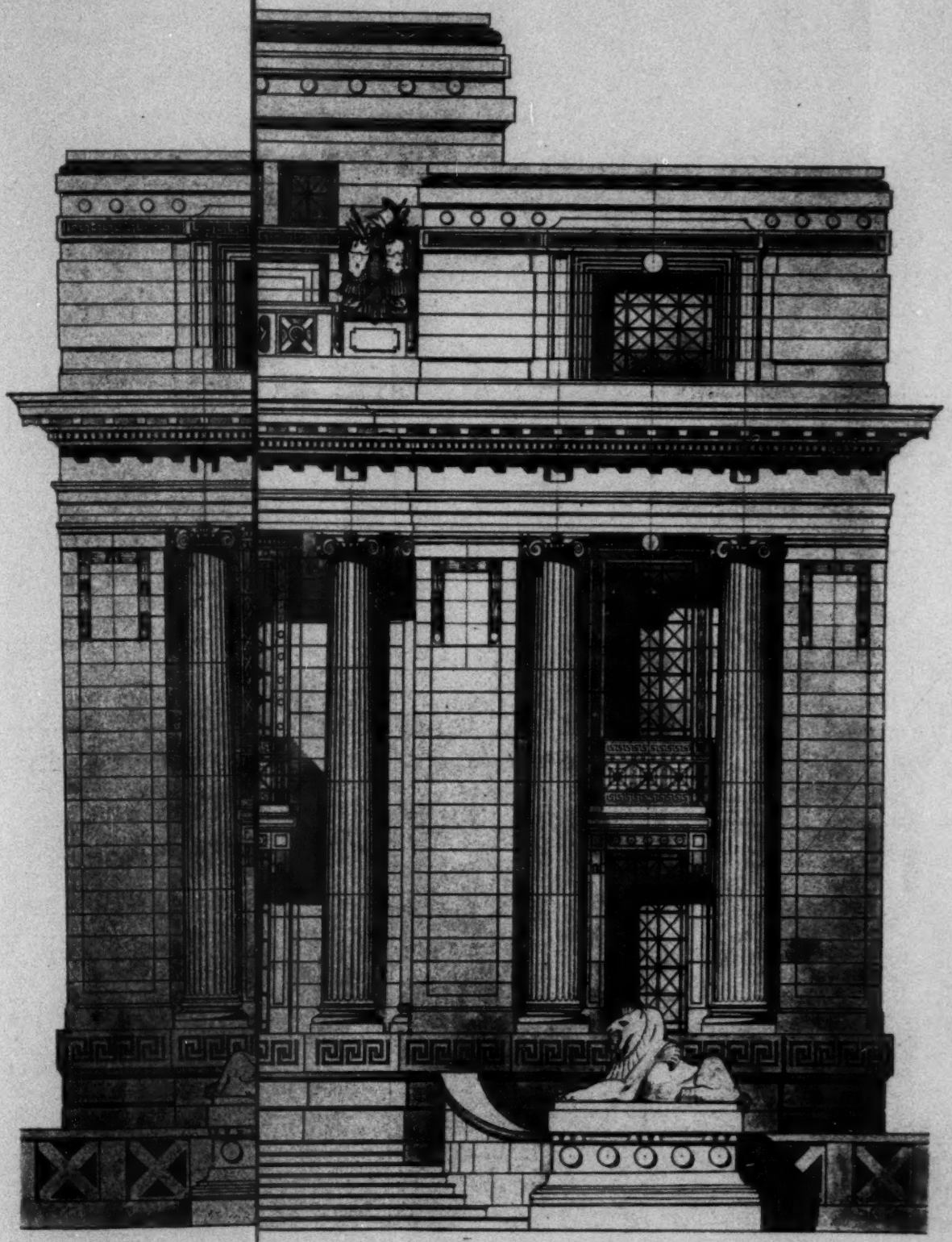
A Relic of Old Suburban London: An Alarum Bell.

In the future years of the metropolis, notwithstanding the rapid changes, there will remain various matters below the ground, and some above it, which will puzzle many hereafter. Amongst the latter we may mention the circular and other shaped plates which used to be so commonly placed on the fronts of houses by the different insurance companies. On the main coach roads within the metropolitan district the roads, which in some instances are now becoming green-looking, will be turned into paved streets; and it is not improbable that some of the milestones may be allowed to remain; and, in course of time, the brief inscriptions will become indistinct by the beating of the weather, and this may lead to the battle of archæologists.

Our object at present is, however, only to record some particulars of an object which, fifty or sixty years ago, was commonly used in the suburbs for the purpose of frightening thieves and protecting life and property. This is the "alarum bell," which was fixed in various positions on those houses which stood in pleasant gardens but in lonely situations; where, notwithstanding the protection of blunderbuses and other weapons, persons were not safe. There are indications of these having been fixed on houses which now form portions of the lines of streets; but on examining these dwellings it will be found that they have been disguised in several ways, by facing, by putting in new windows, by concealing the roof, etc., in order to make them harmonise with their neighbours. An experienced eye will, however, detect that these have been isolated buildings, which have been standing at the time when there was no residence within a considerable distance.

AUSTRALIA AND THE ALDWYCH SITE.

The Melbourne correspondent of the *Daily Chronicle* cables to that journal that the Federal House of Representatives has adopted the Government's scheme to acquire the freehold of the entire Aldwych site, at a cost of 364,000*l*., and to erect thereon a great building, seven stories high, which will include an exhibition hall and the headquarters of the High Commissioner and the six Australian States. The retreat of the London County Council from the onerous conditions which they sought to impose four years ago has been generally approved.



"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

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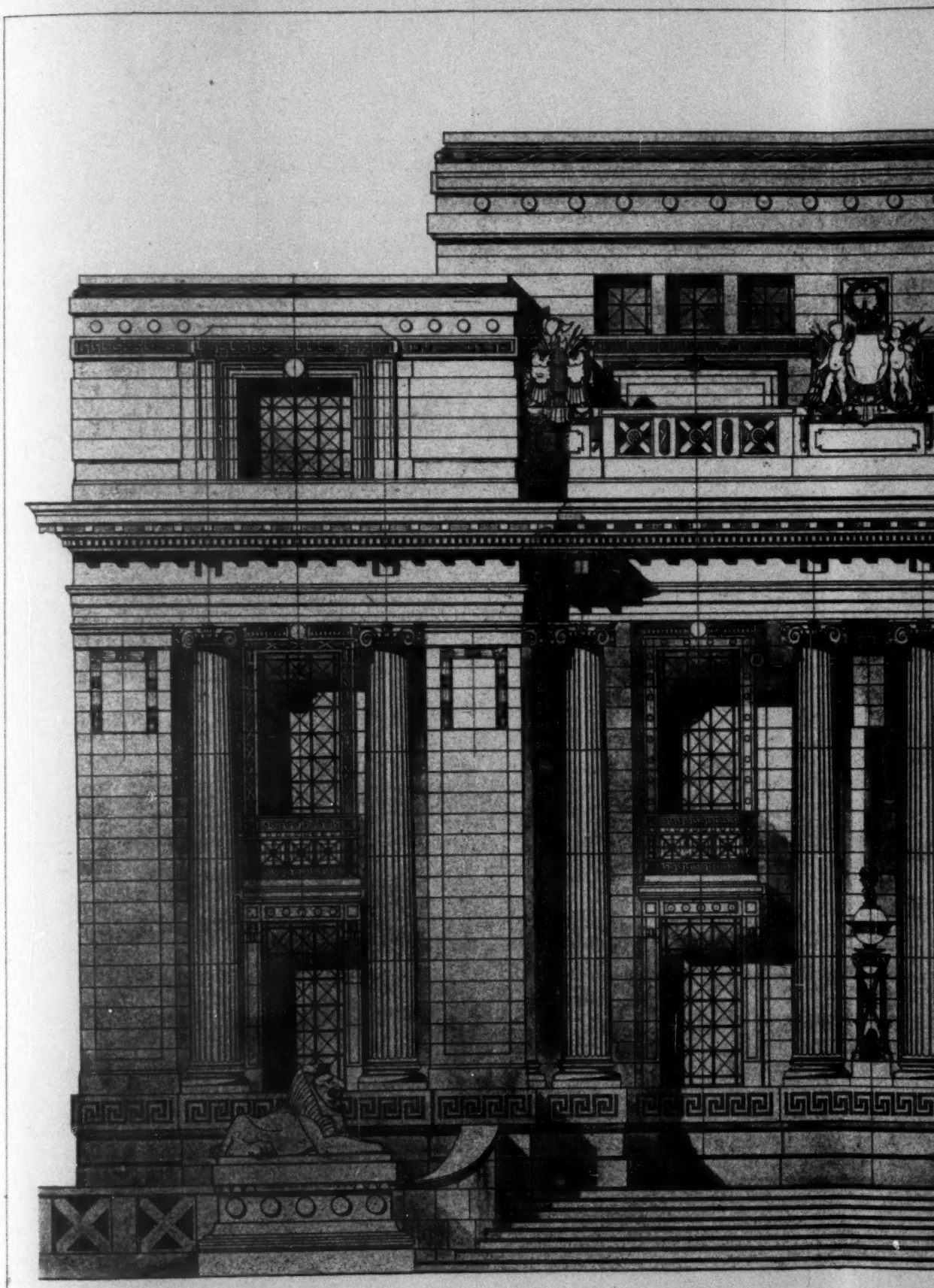

DETAIL

MARYLEBONE MUNICIPAL BUILDI

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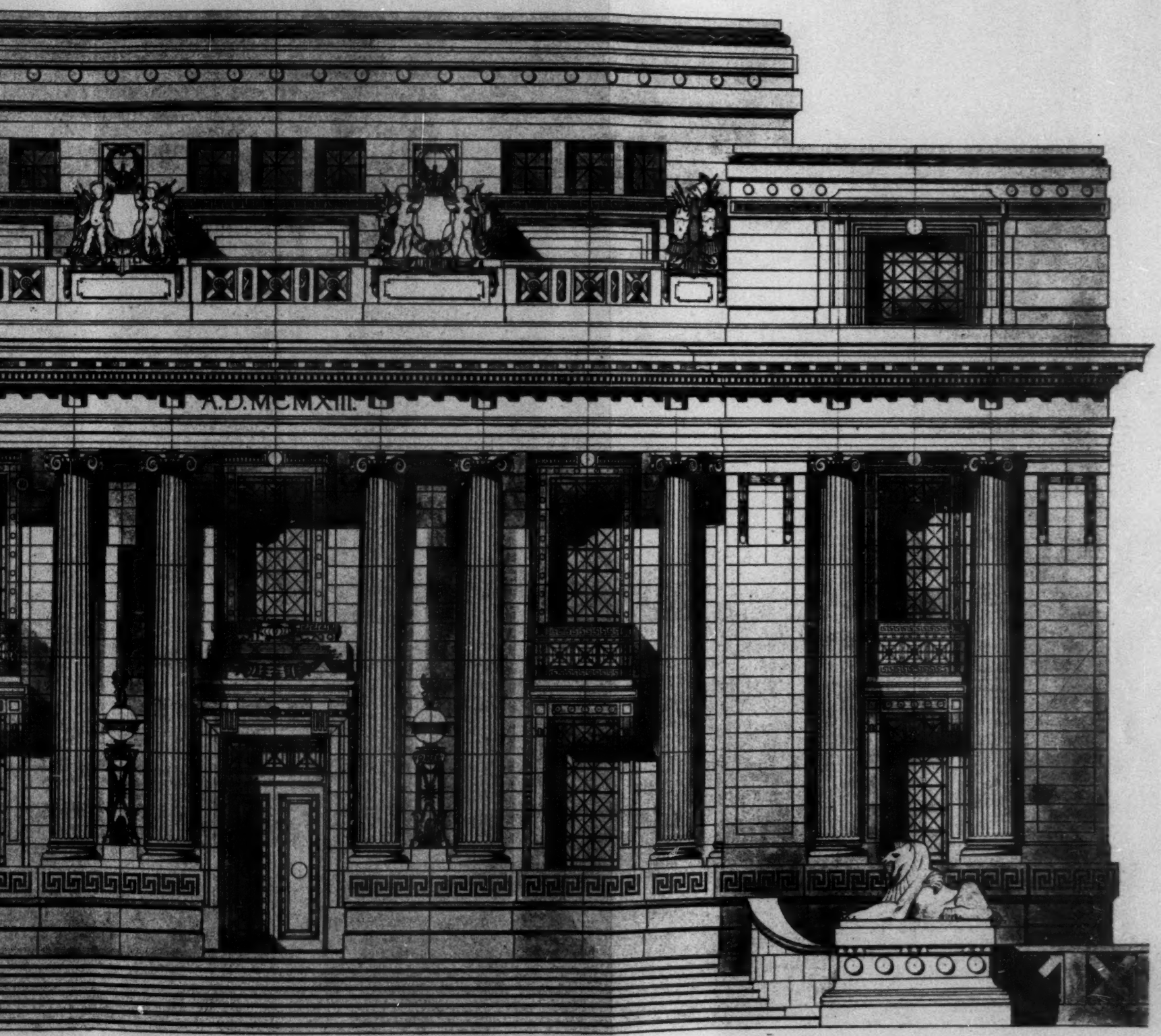


DETAIL MAIN FRONT

"PEN-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

E MUNICIPAL BUILDINGS COMPETITION: DETAIL OF DESIGN PLACED FIRST.

By Mr. T. Edwin Cooper, F.R.I.B.A.

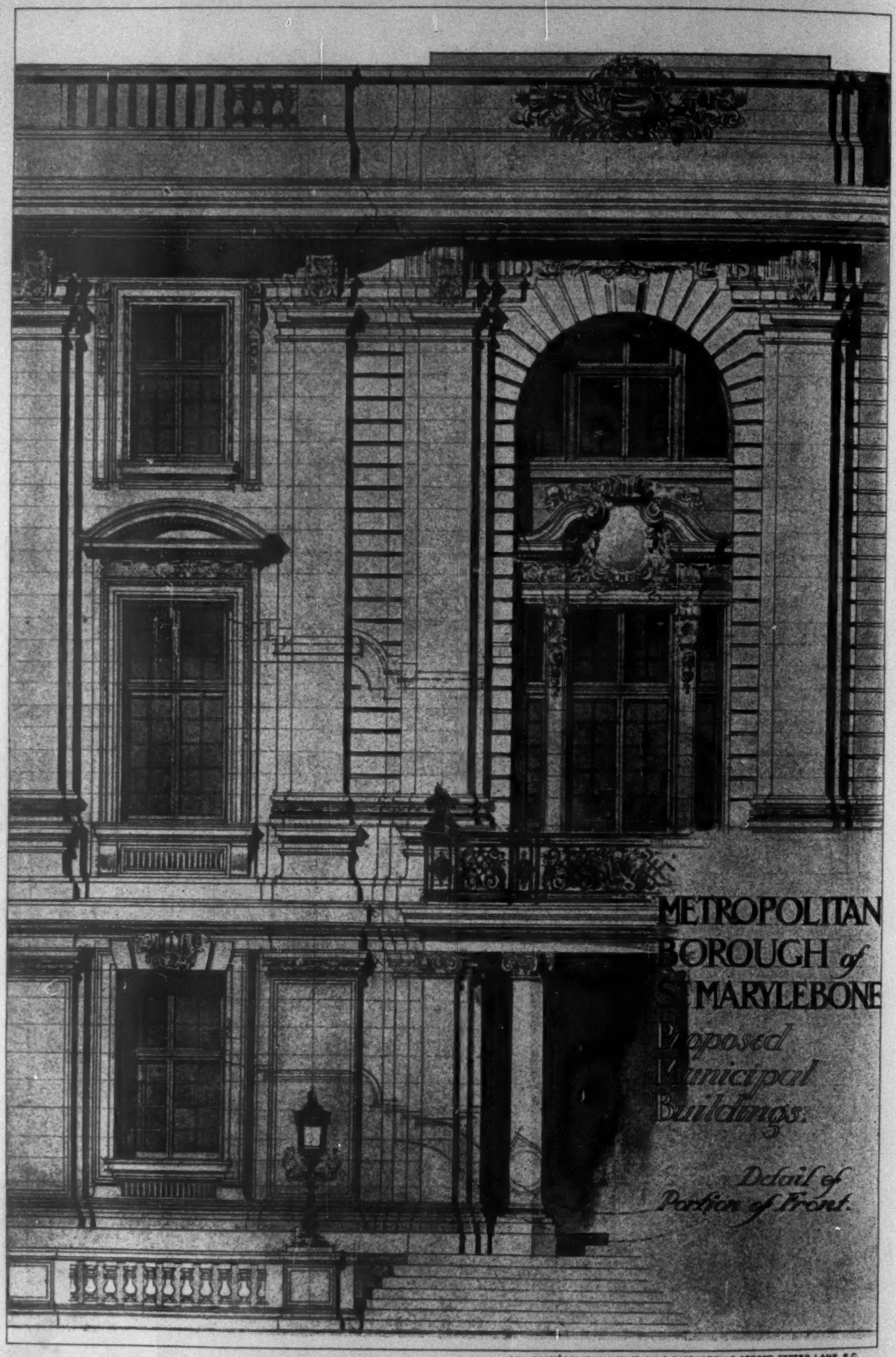
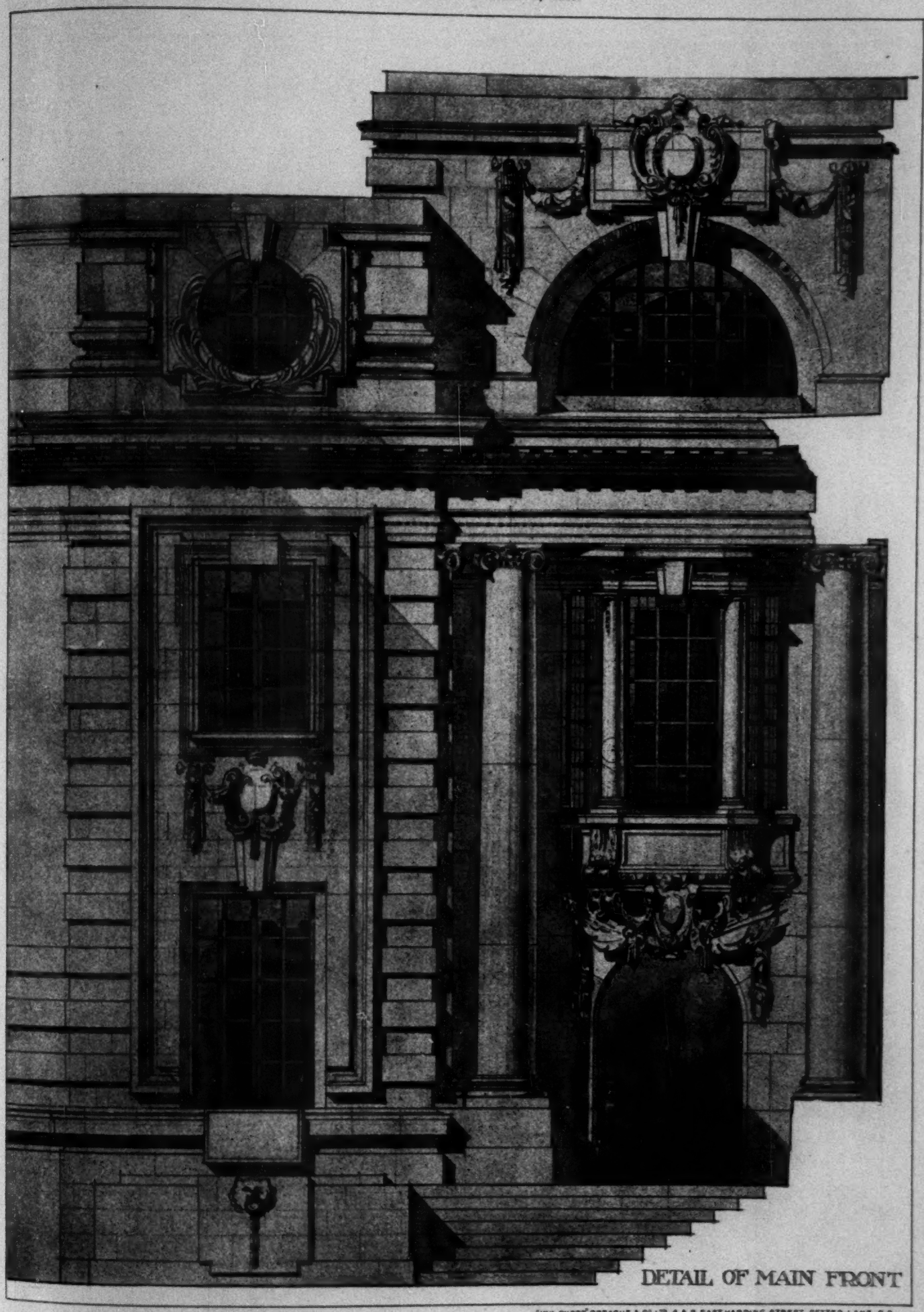


PHOTO-LITH. SPRAGUE & Co LTD 4 & 5, EASY HARDING STREET, FETTER LANE, E.C.

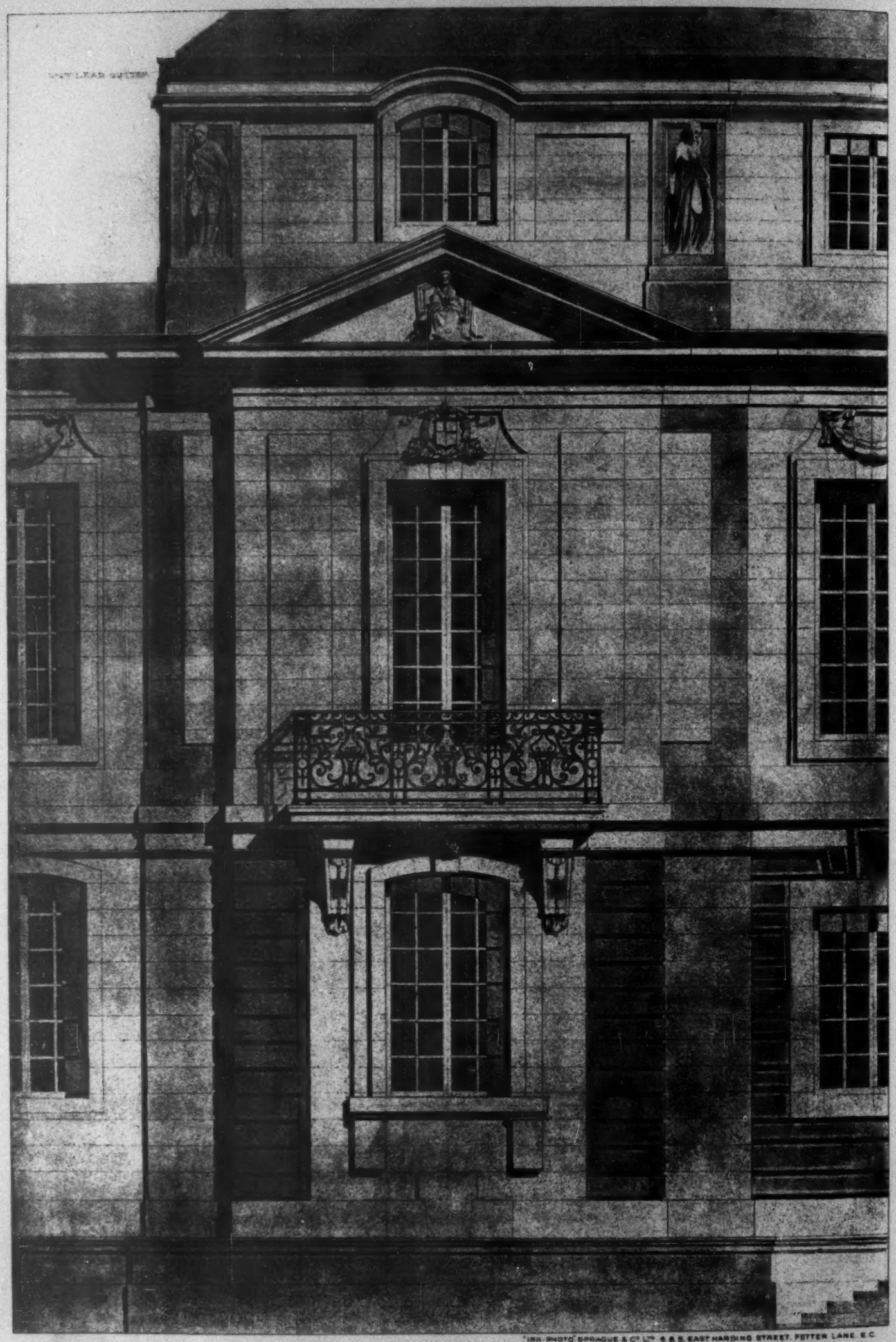
MARYLEBONE MUNICIPAL BUILDINGS COMPETITION: DETAIL OF DESIGN BY MESSRS. LANCHESTER & RICKARDS.



"IRIS-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

MARYLEBONE MUNICIPAL BUILDINGS COMPETITION: DETAIL OF DESIGN PLACED THIRD.

By Messrs. North & Robin.



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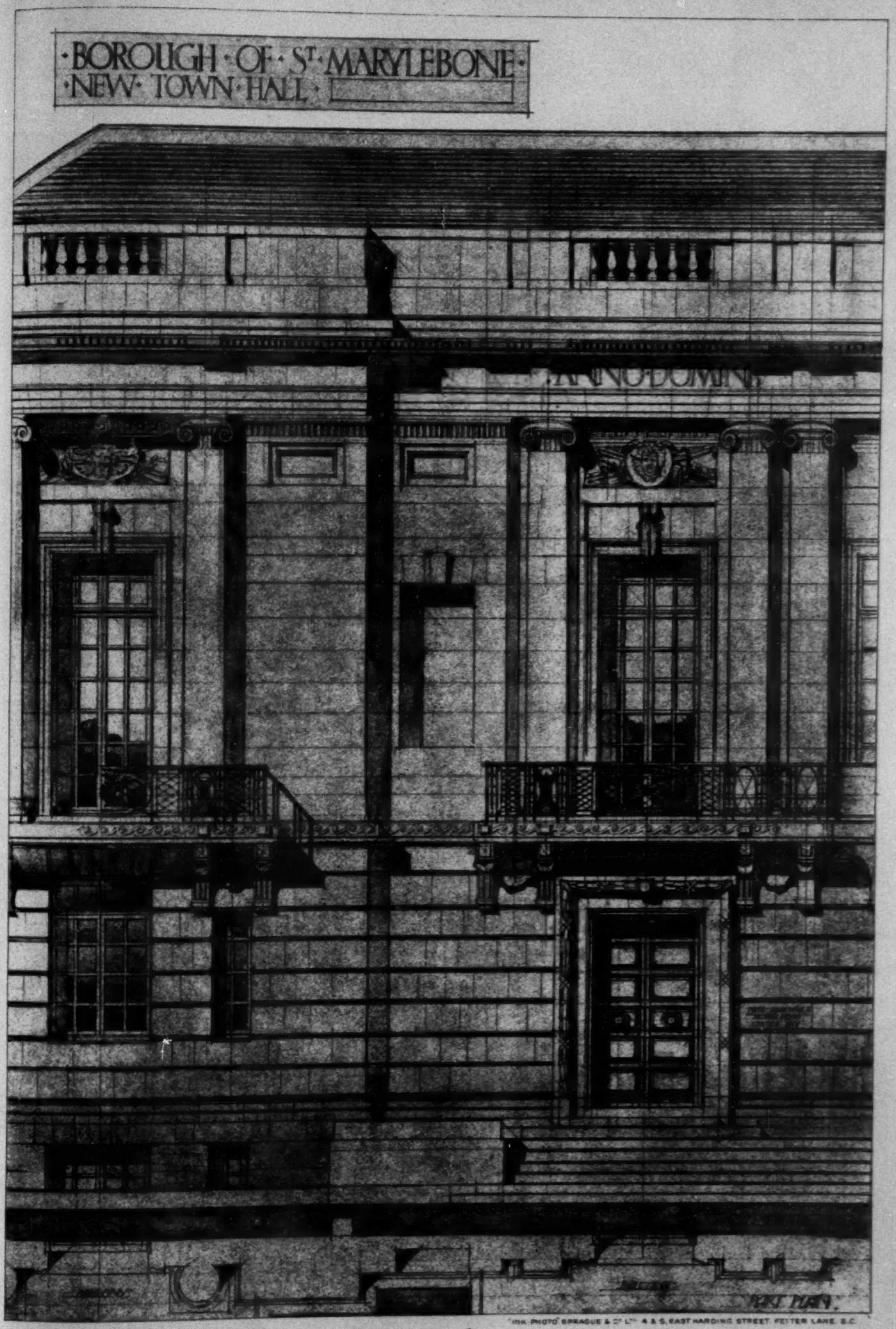
MARYLEBONE MUNICIPAL BUILDINGS COMPETITION: DETAIL OF DESIGN BY MR. W. CURTIS GREEN, F.R.I.B.A.



"INK PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

MARYLEBONE MUNICIPAL BUILDINGS COMPETITION: DETAIL OF DESIGN BY MR. ROBERT ATKINSON, A.R.I.B.A.

MONTHLY REVIEW · *of* · CONSTRUCTION.

[*Photo. by Ewart Millar.*

The Marlborough Hall in the Polytechnic.

THE REGENT-STREET POLYTECHNIC.—II.

[*Continued from page* 576.]

THE back portion of the building is of the same general character as the old construction, which has been remodelled to a very considerable extent and brought thoroughly up to date as far as possible. Various additions have also been made, and the roof over the chemistry laboratory is a fine example of structural steelwork.

Fig. 9 includes a part plan, a part elevation of the saw-tooth roof and parapet, and a cross-section of the parapet construction. It will be observed that the top of the Mansard roof is finished with heavy steel girders for support of the roof trusses and other construction above.

Each of the three saw-tooth trusses in three of the five spans measures 21 ft. 9 in. from centre to centre of the girders, along the base of the triangle, the other two sets of trusses measuring 23 ft. 1½ in. and 23 ft. 2½ in. respectively. The width of the saw-tooth roof is 21 ft. 9 in. over all.

Fig. 10 gives full details of the truss construction and requires no explanation.

From the top of the Mansard roof a very fine panoramic view is obtained of the metropolis from the Crystal Palace on the south to Hampstead and Highgate on the north. The eastern and western is equally extensive, but not so picturesquely delimited by wooded heights. Above the main cornice projects a lofty flag mast of steel, supplied By Messrs. John I. Thornycroft & Co., Ltd., the well-known engineers and shipbuilders.

Fig. 11 is an elevation showing one of the five important trusses supporting the roof of the chemistry laboratory. Presenting from below the appearance of a circular arch, the construction is in reality a rigid truss exerting no appreciable thrust against the construction on either side. Each truss measures 31 ft. 3 in. over all at the bottom, the semicircular intrados springs from the distance of 1 ft. 6 in. above floor level, and is struck to the radius of 14 ft. 6 in.

The foregoing examples of the steelwork in the Polytechnic building will serve to give an idea of the interesting nature of the construction, which is in every way worthy of the eminent firm by whom it was executed.

Walls, Partitions, and Ornamental Work.

For the interior partition walls the "Mack" fire and sound resisting slabs and blocks have been largely used, having been supplied to the general contractors by the patentees, Messrs. J. A. King & Co., of Queen Victoria-street, E.C.

Brick has been used chiefly in the main walls, faced with stone on the Regent-street façade. The entrance hall is panelled throughout with marble, prepared and supplied by Messrs. J. Whitehead & Sons, Ltd., of Imperial Works, Kennington.

The ornamental plaster work was executed by Messrs. G. & A. Brown, Architectural Ornamental Works, Hammersmith, and the stained glasswork by Messrs. Campbell & Christmas, of St. Oswald's Studios, W.

Ferro-Concrete Construction.

The ferro-concrete work in the remodelled building consists of floor panels, stairways, and a retaining wall forming the Regent-street front of the basement and sub-basement stories. All this work was designed in accordance with the Hennebique system, the working drawings having been prepared for the architect by Messrs. L. G. Mouchel & Partners, of Westminster, and it was carried out by Messrs. Holloway Bros. (London), Ltd.

It is scarcely necessary to occupy space by a description of the floors, as the Hennebique type of design is familiar to most of our readers, and the dimensions of the floor panels have already been stated.

Figs. 12 and 13 give typical details of the stair construction.

Fig. 12 contains a plan and part sectional elevation of the main stairway wherein two wells are incorporated for two passenger lifts installed by Messrs. R. Waygood & Co., Ltd., of Falmouth-road, S.E. The landings, as well as the stair slopes and treads, are in ferro-concrete, structural details of which are fully shown in the drawing, as well as the

method of anchorage between steel girders and the ferro-concrete work.

Fig. 13 is reproduced from a working drawing of the stairs from the lecture theatre, an interesting feature of the construction being the cantilever landing 8 ft. wide with the overhang of 4 ft. 6 in.

Fig. 14 illustrates the retaining wall along the front of the basement and sub-basement stories. It is 26 ft. high and consists of a vertical slab, supported by a footing slab and stiffened at intervals by counterforts. The slender dimensions of the wall, as shown

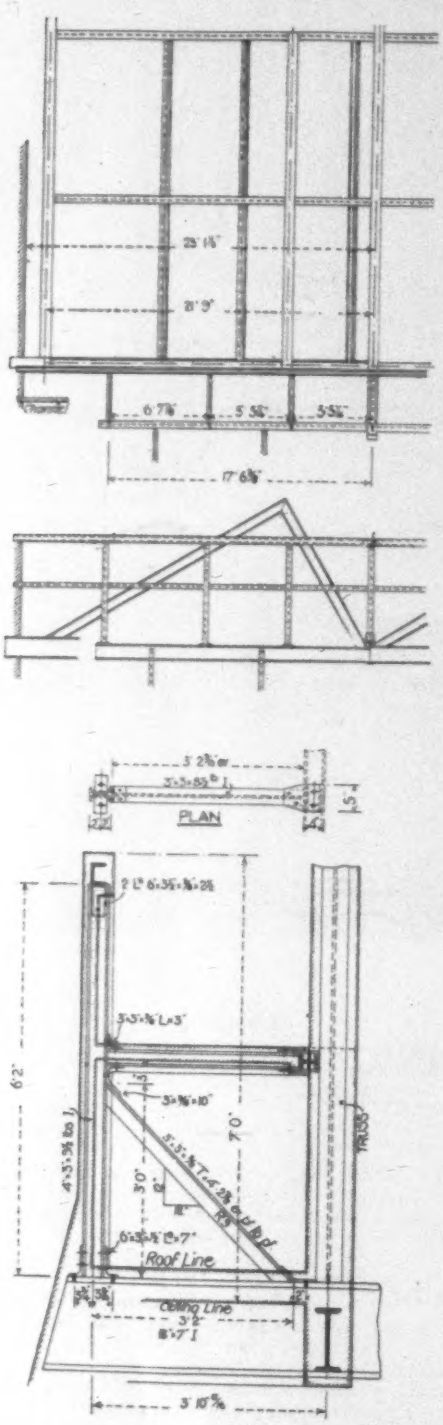


Fig. 9. Saw-Tooth Roof and Parapet.

in the drawing, sufficiently indicate the great saving of space effected by walls of this type, another important consideration being the avoidance of useless dead weight, which in mass concrete retaining walls of the ordinary kind impose unnecessary and objectionable load on the soil.

Electric Lifts.

Each of the Waygood lifts mentioned above extends from the ground floor to the fifth floor, and is capable of raising eight persons at the speed of 150 ft. per minute. The passenger car has hardwood panelling, domed top, and is fitted with mirrors inside, altogether presenting a handsome appearance.

[Photo. by Ewart Millar.

The Gymnasium in the Polytechnic.

The gearing consists of an electric motor directly connected to worm-gearing, working in an oil bath and controlling the winding drum. The latter is grooved to fit the steel wire ropes, so as to obviate undue wear, and the ropes are attached in such manner as to guard against slip.

The cage and balance weight are suspended by four ropes, each of more than sufficient tensile strength to sustain the entire load with an ample factor of safety; but in addition a safety device is fixed to the under side of the cage, the apparatus including grips which engage the vertical runners in the event of undue stretching or failure of the ropes. A commendable feature of this safety gear is that its action is purely mechanical and does not depend upon the operation of springs.

The lift is controlled by means of a small handle in the car, the handle being fitted so that unless held in the required position it will automatically revert to the central point and cause the lift to stop. Another advantage is that the handle can be detached, thus enabling the attendant to take it away in case he should have to leave the car for any reason, and so make it impossible for unauthorised persons to start the cage. The controller is provided with up and down circuit breakers operated by solenoids and fitted with a magnetic cut-out to minimise

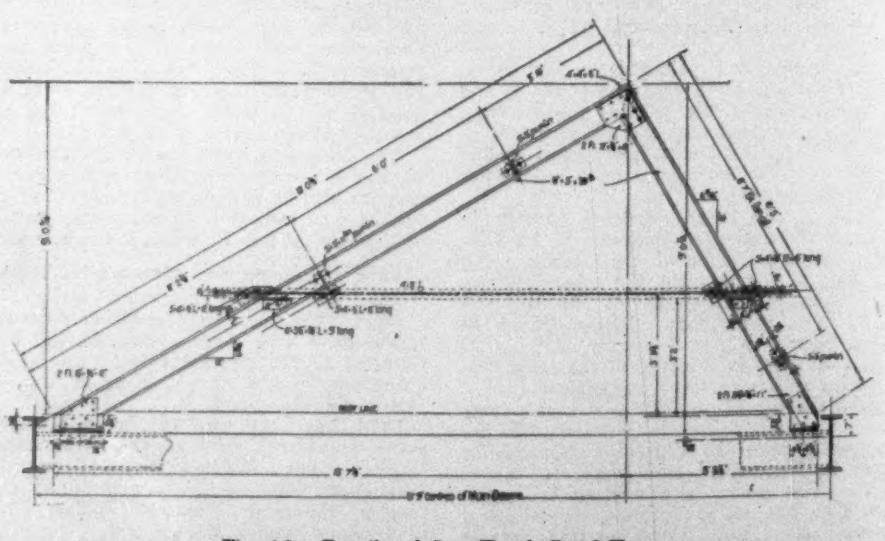


Fig. 10. Details of Saw-Tooth Roof Truss.

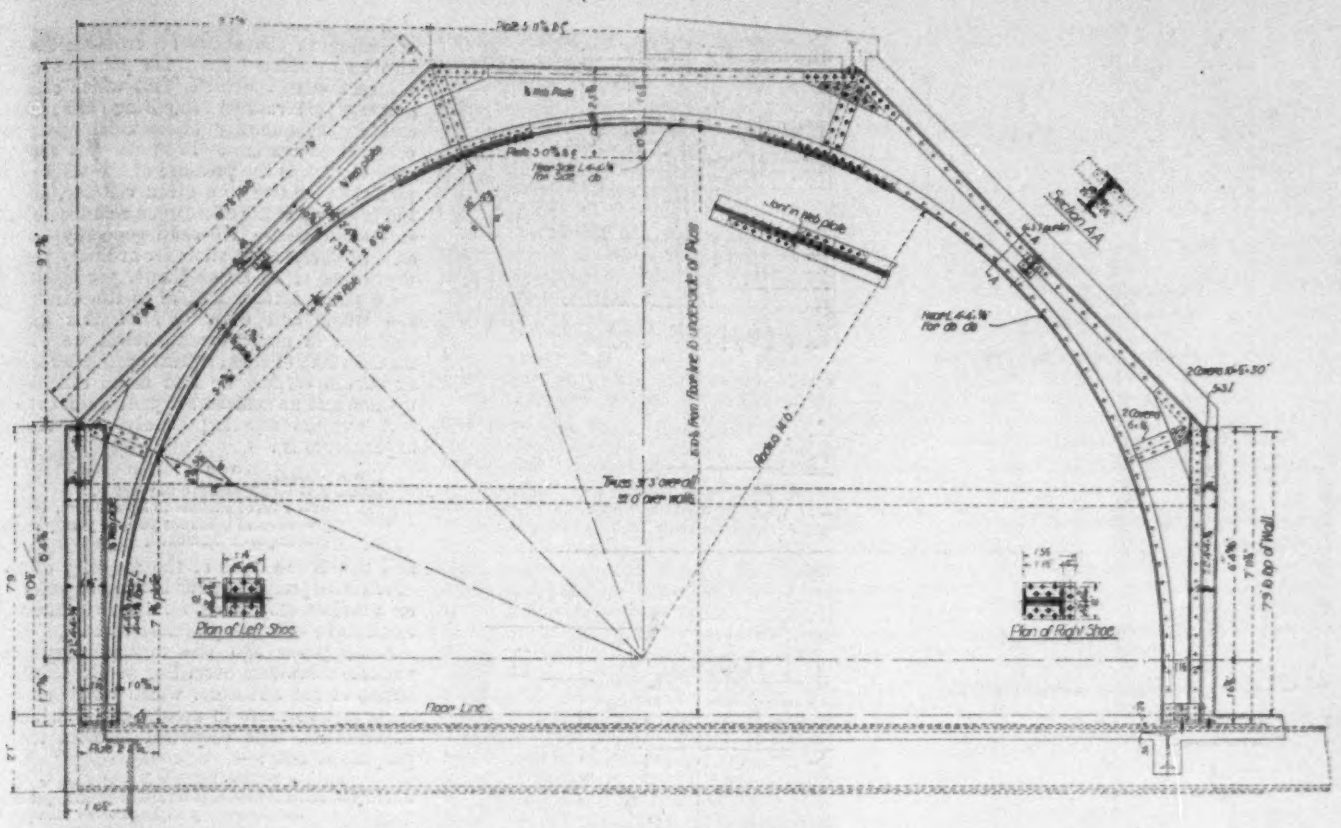


Fig. 11. Arched Truss in Roof over Chemistry Laboratory.

arcing. Operations are conducted through a rheostat working so that it is quite automatic in cutting out resistances at a fixed speed, independently of the way the handle is used in the car. The whole apparatus is mounted on a slate panel, and arranged so that all parts are readily accessible.

The gearing and controlling devices are placed on a bed-plate, bringing all the machinery together, and thereby obviating the necessity for trip switches in the lift shaft and simplifying the wiring.

In addition to the passenger lifts, the building is equipped with a hand-power carriage lift, having a platform 14 ft. long by 7 ft. 10 in. wide, and capable of raising loads up to 2 tons. The platform is strongly built, having a steel frame covered with timber. The platform guide runners are of channel bars fixed to the walls by wrought-iron brackets, and the lift is operated by a double-purchase crab fitted with a powerful lever brake. This lift, providing means of communication between the ground floor, basement, and sub-basement, will enable the staff to convey new machinery and testing appliances into the engineering workshops, and its ample size makes it available for the similar treatment of large motor-cars should occasion arise.

THE DESIGN OF TALL CHIMNEYS.

A MEETING of the Society of Engineers (Incorporated) was held at the Institution of Electrical Engineers, Victoria-embankment, W.C., on Monday, when Mr. Henry Adams, M.Inst.C.E., M.I.Mech.E., F.S.I., read a paper on "The Design of Tall Chimneys." In his remarks he said :—

"Architects in the course of their practice have frequently to furnish designs for special constructions, and, although they sometimes adopt the sensible course of calling to their aid the services of an expert, they more frequently draw out what they think ought to do, and place the responsibility upon the contractor. The present condition of general knowledge upon the subject of stability of tall chimneys is strikingly shown in connexion with the Mechernich shaft. This was designed to withstand a wind pressure of 160 lb. per square foot; Professor Rankine calculated that it would stand only 70 lb. per square foot, while Mr. R. J. Hutton, a later writer, estimated that a wind pressure of only 32 lb. per square foot over the whole height would be sufficient to damage it. Tall chimneys ought to be designed upon scientific principles, so that there is an absolute guarantee for their stability, and in the following paper the author desires to elucidate these principles.

Height.—In designing a tall chimney it is desirable first to know what height to make it. Forty-five feet is an ordinary height to serve two steam boilers, but in some towns, as Manchester and Leeds, 90 ft. is the minimum

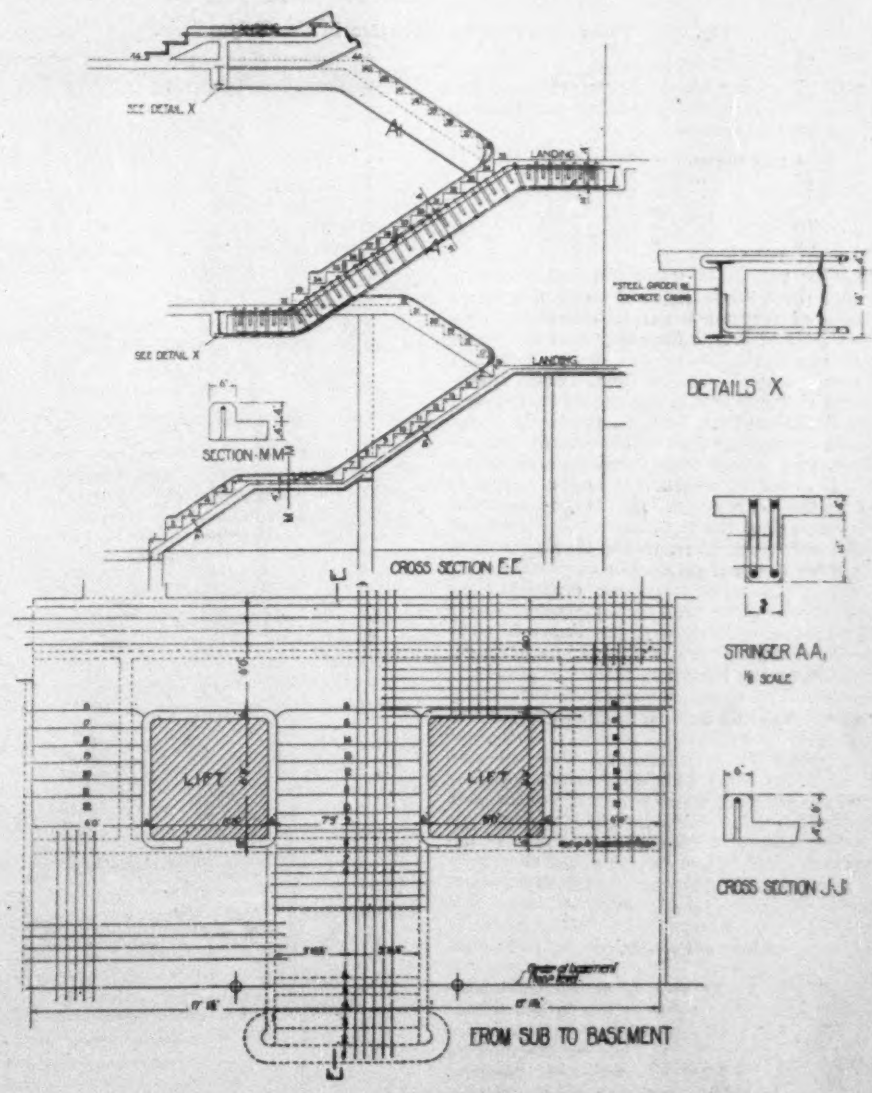


Fig. 12. Main Stairway : Plan showing Passenger Lift Wells.

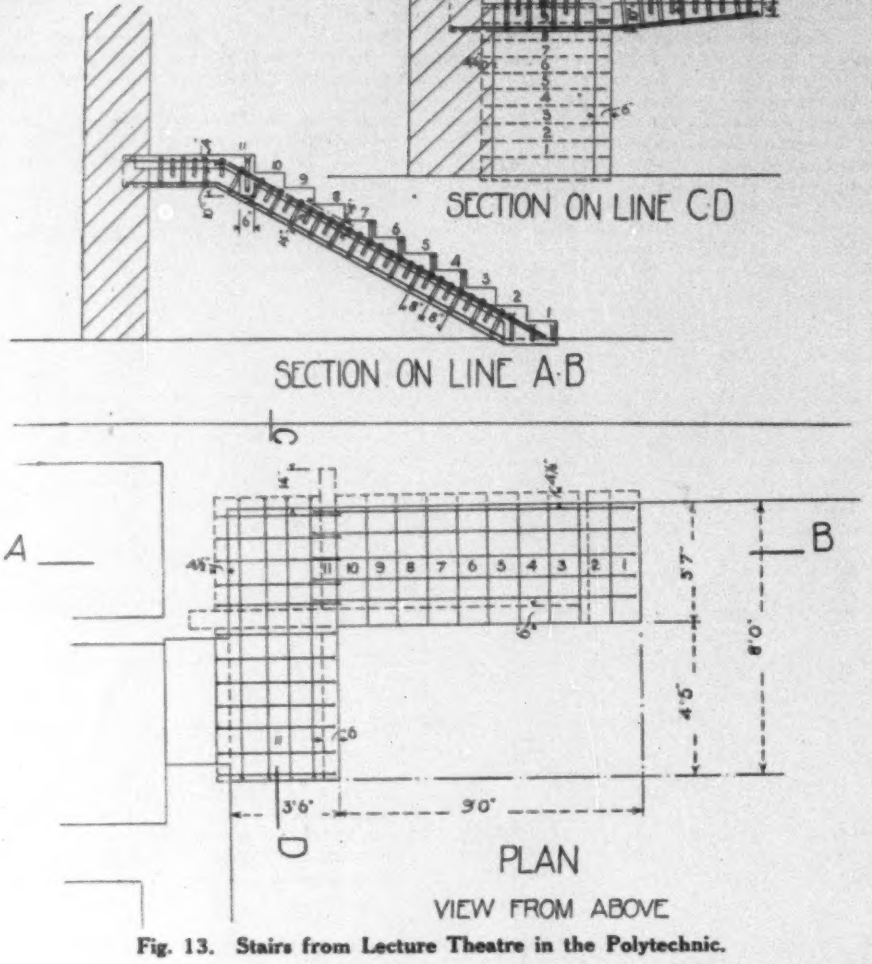


Fig. 13. Stairs from Lecture Theatre in the Polytechnic.

allowed. They are sometimes proportioned for height according to the coal burnt per week of fifty-six hours, thus :—

4 tons	per week	=	75 ft. high.
13	,,	=	100 ,,
26	,,	=	120 ,,
50	,,	=	150 ,,
100	,,	=	180 ,,
150	,,	=	200 ,,

Another rule is to make the height of the chimney three times length of boiler plus twice distance of furthest boiler to chimney. This allows 1 ft. of height for every foot the gases travel round the boiler and 2 ft. of height for every foot of external flue. And, again, a round chimney should not exceed twenty-five times its internal diameter in height. In many modern power-stations Babcock & Wilcox boilers and Green's economisers are used; what is saved in obstruction in the boilers is lost in the economisers, so that no material difference arises, but the chimney-shafts are, as a rule, only from 75 ft. to 100 ft. high and of very large sectional area. For chemical works, or where poisonous fumes are emitted, they should be higher than for ordinary steam boilers, in order to disperse the fumes at such a height that they may be diluted to a harmless condition by the time they reach the ground.

Shape.—The necessary sectional area being obtained, it should next be decided whether the chimney is to be round, octagonal, or square. It is generally acknowledged that circular chimneys have the best appearance, at least above the pedestal, which is usually square, and from which the circular part springs by broached angles. Octagonal chimneys have the next best effect, some even consider that they are more sightly than round chimneys, while square chimneys always look more or less heavy and are only suitable for short stacks of large area, such as are generally used in modern central station work. The circular chimney is most efficient for its area, as it takes the least material and there are no angles in which soot may cling, but with any chimney it is desirable to add 2 in. all round to the calculated minimum area to allow for friction. Octagonal chimneys require special bricks for the angles in alternate courses, to produce the best work.

Wind Pressure.—The comparative efficiency according to the shape of cross-section may also be considered from the point of view of obstruction to the wind, that which offers the greatest obstruction requiring the greatest stability or quantity of material apart from other considerations. It is not yet definitely settled what is the pressure of the wind upon a plane surface due to a given velocity, and still less is known of the effect upon a surface inclined to its direction. We shall generally be quite safe, however, if we allow for ordinary purposes a pressure of 56 lb. or ½ cwt. per square foot on a plane surface normal to the direction of the wind, and even half of this may be sufficient in many cases. When we come to fix the value of these figures against an inclined or curved surface we find much difference of opinion and no sufficient experimental evidence.

A formula agreeing closely with Hutton's experiments is :—

$$P = a\,p\,(\sin\theta)^{1\cdot84\cos\theta}$$

where P = total pressure in pounds,
a = area of surface in square feet,
p = normal pressure pounds per square foot,
θ = angle of incidence,

and this is the basis of the majority of tables of effective pressures; but Hutton experimented on a surface only 22 sq. in. area, which was too small to be of much practical value.

Some years ago the author suggested a variable allowance according to the width and height of the structure, which would cover all cases and be more in accordance with modern experiments. His empirical formula for this purpose is now :—

$$\log p = 1\cdot125 + 0\cdot32 \log h - 0\cdot12 \log w$$

where p = ultimate wind pressure in pounds per square feet necessary to be allowed for against a plane surface normal to the wind;
h = height in feet of centre of gravity of surface considered, above ground level;
w = width in feet of part to be taken as one surface;

and when the surface is inclined at θ degrees to the direction of the wind, the ultimate pressure normal to the surface may be taken as $= p \sin\theta$, or its effect in the same direction as the wind $= p \sin^2\theta$.

Pressure on Square Chimney.—A square chimney will give the same resistance whether

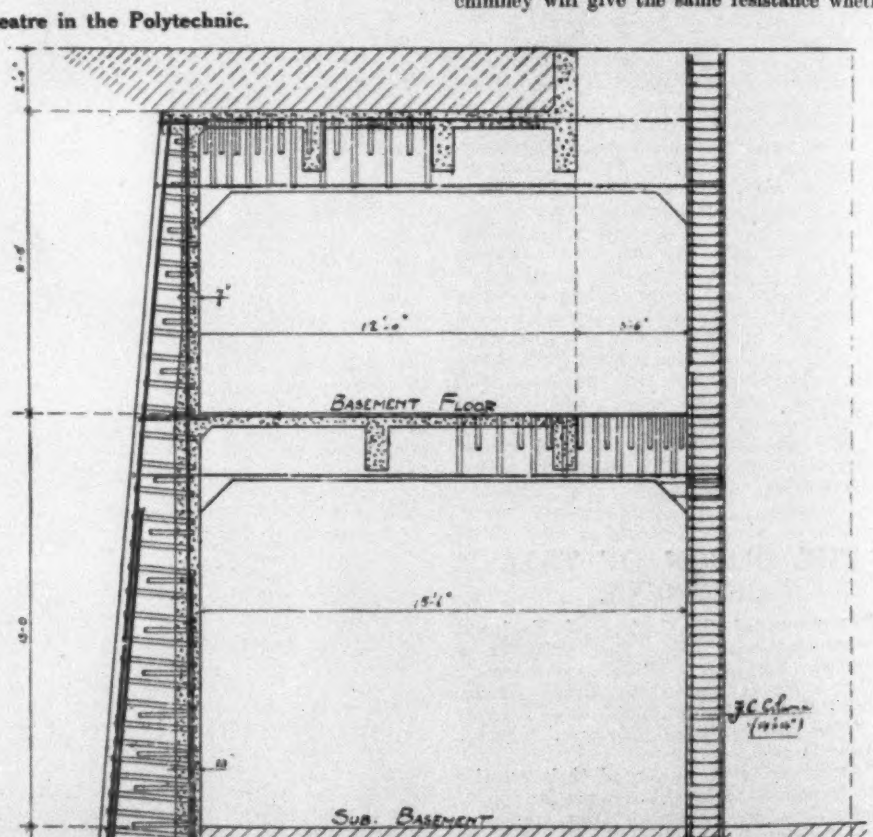


Fig. 14. Section of Retaining Wall in the Polytechnic.

facing the wind or standing diagonally to its direction, the greater area of the inclined surface and the reduced pressure upon it making the same total as the flat side under the full pressure.

Pressure on Circular Chimney.—With circular chimneys a very serious difference of opinion exists as to the effective pressure of the wind, as shown by the following list of multipliers recommended :—

Rankine ...	= ·5	Professor Hutton	= ·66
Wilson ...	= ·56	Gaudard ...	= ·66
Borda ...	= ·57	Bressé ...	= ·78
Sir B. Baker	= ·57	Adams ...	= ·7854

Pressure on Octagonal Chimney.—An octagonal chimney has two extreme positions with regard to the wind, viz., when it is acting directly against one face and when acting directly against one edge. For the former case the author's multiplier would be 0·83 and for the latter 0·82 ; there is not much difference, but the latter coefficient gives rather the higher result as it is taken against the width over angles.

Prussian Government Rules.—In April, 1902, the Prussian Government issued regulations for the construction of chimney-stacks. Square stacks to be designed for a wind pressure of 25½ lb. per square foot, with the centre of pressure at the centre of gravity of diametral vertical plane. Octagonal stacks, 71 per cent. of the above pressure, and circular stacks, 67 per cent. (*Engineering Record*).

Thickness of Brickwork.—Up to 150 ft. high or 5 ft. inside diameter the top length is generally one brick (9 in.) thick ; above that height or diameter the top length should be one brick and a half thick, and the thickness should be increased by a 4½-in. set-off at every 20 ft. below the top. The outlet at top and the throat or internal diameter at each set-off should be of the calculated size to give the necessary area plus allowance for friction. Sometimes one hears it recommended that the top of the chimney should be contracted, to cause the expulsion of the gases at a greater velocity and so to prevent down draught. It is said also that as the gases cool in their passage up the chimney they require a smaller sectional area to keep the velocity uniform. In general no attention is paid to either of these theories and the section is kept as uniform as the other requirements will permit.

Batter.—If the diameter of the throat is kept uniform and a 4½-in. set-off occurs at every 20 ft., the intermediate portions being of uniform thickness, a batter of 1 in 53·33 will be given, but the London County Council insist on a minimum batter of 1 in 48 = 2½ in. in 10 ft., and besides that it will be requisite in most cases to provide a firebrick lining for at least the bottom 15 ft. or 20 ft., having a thickness of 4½ in. and a clear space from the outer brickwork of 1½ in. to 2 in., necessitating a still greater batter.

Chimney-Cap.—The chimney-cap or cornice, by the London County Council rules, must not project more than the thickness of the brickwork upon which it rests. It may be of cast-iron casings bolted together and filled with brickwork ; or of granite or other good weathering stone, the separate blocks being cramped together with galvanised-iron cramps, or with an iron hoop sunk into the top and protected with cement ; or of brickwork in cement.

Diameter at Base.—There is also an important rule of the London County Council which says "the width of a shaft at the base, if square on plan must be at least one-tenth, and if circular on plan, at least one-twelfth of the total height."

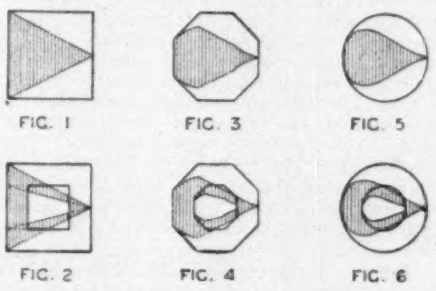
Firebrick Lining.—The firebrick lining must be entirely self-supporting and have a clear space behind, to allow for expansion and contraction independently of the main structure, which would be prevented if dirt and dust were to get behind it. It is therefore necessary to cover the top of the space by an over-sailing course of bricks built out from the inside of the main shaft, protecting the space, but allowing a clearance above the lining of ½ in. for every 5 ft. of its height, to permit of its expansion when heated. The average height of this lining is ¼ height of shaft + 10 ft. A common height is 20 ft. and thickness 4½ in. ; when of greater height it is necessary to make the lower part 9 in. thick. No air bricks should be inserted in the outer wall, as is sometimes done with the idea of cooling the air space, any such openings being very detrimental to the draught. The only possible inlet for air to the chimney-shaft should be through the fire-bars or over the surface of the incandescent fuel.

The smoke inspectors of the London County Council have lately recommended openings into the chimney-shafts near the bottom to reduce the smoke nuisance. The real effect is to dilute the smoke with air before it reaches the chimney-top so that it is not so black when expelled, but it does not reduce the actual amount of carbon emitted except so far as it tends to spoil the draught and so to reduce the fuel consumption and boiler efficiency.

Stability.—Having drawn out the vertical section to suit the conditions, it will be essential to test the stability by calculation, but this is a somewhat complex matter and requires some preliminary data that will now be dealt with.

Materials and Weight.—The weight of each portion of the shaft, *i.e.*, between each set-off, should be obtained separately so that the figures can be used singly or together. The weight will depend very much upon the material. Many chimney-shafts are built of ordinary stock bricks and ground stone-lime mortar, and may be taken at 112 lb. per cubic foot. Others are built of solid machine-pressed bricks and lias lime mortar, and may be taken at 126 lb. per cubic foot. Some builders prefer perforated radial bricks and Portland cement mortar, weighing, say, about 100 lb. per cubic foot. Others consider that cement is too unyielding and that a shaft has greater ultimate stability if it sways slightly in a gale, which they fear the use of cement mortar might prevent. The bond usually adopted is one course of headers to four courses of stretchers, but sometimes tall chimneys are built in English bond, and occasionally in all headers.

Tall Chimneys
Resistance areas of different sections



Safe Load on Material.—Assuming best workmanship and material, the maximum safe load may be taken as follows, being about 50 per cent. higher than would be allowed for live loads or inferior conditions :—

	Tons per foot super. Compression
Granite	25
Portland and compact limestone	20
Hard York stone	15
Blue brick in cement	12
Stock " "	10
" " lias mortar ...	8
" " grey lime mortar	6
Cement concrete 6 to 1	9
Deep clay (foundations not less than 10 ft. from surface), gravel and compact earth	3
Made ground rammed in layers ...	1½

	Tons per foot super. Tension.
Grey lime mortar (1 to 2)	1·0
Lias lime mortar (1 to 2)	1·5
Portland cement mortar (1 to 3)	2·0

Foundation.—It is important to note that a tall chimney should stand on an independent foundation in order that the settlement, or compression of the soil, may be uniform. When a chimney is built close alongside a boiler-house, or within the four walls of a warehouse, it is sometimes placed on an extension of the other foundations and bonded in with other work, but this invariably leads to unequal settlement and subsequent cracks in the brickwork. It is evident that an ideal site would be on virgin soil of uniform character, preferably firm gravel, and not over old excavations, or a filled-in watercourse, or over old shaft workings, although all these positions have been adopted from carelessness or necessity.

Principles of Stability.—The principles of stability can best be illustrated by taking a solid square brick pier, say, 3 ft. square and 30 ft. high, weighing 1 cwt. per cubic foot. The total weight will be :—

$3 \times 3 \times 30 \times 1 = 270$ cwt.,
The area of base $3 \times 3 = 9$ sq. ft.,
The mean pressure on base $\frac{270}{9} = 30$ cwt. per square foot.

The resultant of the weight of all the parts passes vertically through the centre of gravity of the mass and cuts the centre of the base. If the wind be assumed to blow horizontally against one side the effect will be collected at the centre of the face and act with a leverage of half the height, and the resultant of the two forces P and W will gradually approach the outer edge of the base as the wind pressure increases.

Application to Chimney-Shafts.—The reason we have considered the stability of the plain brick pier is that we shall be able to deal with complex chimney-shafts the more readily. Nearly all the different forms of bed joint can be reduced to a few simple diagrams. These are collected together in Figs. 1 to 6, the shaded part being the resistance area, or measure of effective resistance, of each. Another form of section may occasionally be found, viz., square with two buttresses on each face, the resistance area of which would be found in a similar manner to the preceding, and the centre of gravity would be found experimentally by cutting out the area in drawing-paper and suspending it from two points. These shaded portions have been described as resistance areas, although they correspond exactly with the inertia areas for a neutral axis coinciding with one edge. The reason is that in calculation account is taken of the actual conditions, viz., a uniformly distributed load, and a bending moment producing compression on one side and tension on the other side of a neutral axis passing through the centre of gravity of the section."

COLOURING OF PAPER.

MR. E. HEUSER, describing recent developments in the decoration of paper, refers to great advances from an artistic standpoint, the aim being to avoid sharply-defined patterns and to effect the tasteful blending of the different colours in harmony with the structure of the paper. It is this structure which governs the diffusion of the colours, and the different varieties of fibrous materials develop different types of patterns. The effects obtained vary with the process of application of the colouring matter ; sometimes this is applied in the form of clear solutions of dyestuffs, sometimes in the form of separately dyed fibres of a different nature from the body of the paper—*e.g.*, mechanical or chemical wood pulps, sawdust, ramie, or even pieces of dyed paper stamped out, suspended in water, and allowed to flow on the surface of the wet paper on the wire of the machine. When solutions of dyestuff are used their penetration and diffusion depends on the position on the wire at which they are applied—*i.e.*, on the amount of water present at that particular moment in the body pulp in the course of formation of the web. In the manufacture of "Phidias" or "Marmorella" papers solutions of different dyestuffs are run on the surface, diffusing to a certain extent, but retaining the form of straight stripes. These stripes are made wavy by the to-and-fro motion of strips of felt moved sideways by means of an eccentric. In the "Cirrhus Relief" paper the manufacture is based on the fact that the drained surface of a free beaten pulp on the machine wire is naturally irregular, being composed of elevations and hollows. Across this uneven surface are sprayed horizontally solutions of dyestuffs, which is taken up by the sides of the elevations on the surface and misses the hollows, creating a relief effect. When the paper is smoothed out the actual relief vanishes and the paper becomes flat, but the colour relief remains. The surface of the pulp may be made irregular by drops of water, forming "craters," or regular relief patterns may be impressed by a coarse dandy roll on the surface of the paper before spraying on the colour, and when this is applied the pattern of the dandy roll remains on the finished paper in the form of a colour-relief. "Terrazzo paper" is made by first applying a uniform layer of colour by means of a felt roll to the surface of the moist web on the wire, and then spraying water on the coloured surface—the surface layer is thus disturbed and forms pale patches with dark edges. Lastly, the author mentions a method of producing patterns by allowing a differently coloured fibrous pulp to flow on the paper machine wire through a stencilled wire sieve, so that the applied pulp reproduces the patterns of the stencil before the body pulp is applied.

THE BUILDING TRADE.

PRIME-COST CONTRACTS.

A LARGE number of buildings are being erected to-day on what may be called a prime-cost basis, and, as the tendency to enter into contracts on these lines appears to be on the increase, a discussion of the system may be useful. The usual agreement is one whereby the contractor accepts the actual prime cost of the building to him with a percentage addition for both establishment charges and profit, the building owner being allowed free access to his books and a clerk of the works being appointed by him to check time, materials, etc., on the works. The advocates of the system contend that it is perfectly fair to both parties, as the building owner pays for neither more nor less than he receives, and that there is no incentive to scamping. Now it is well known that on a job where there is no lump sum contract there is always a strong tendency to slackness on the part of the workmen which the contractor finds very difficult to check. The scamping in the building trade is very much exaggerated; any respectable contractor has a reputation to keep up, and has a great deal to lose if his work is condemned. What scamping there is is generally the work of an over-zealous foreman. All owners like to know, and it is essential that most should know, the cost of the building before they commence work; but under the prime-cost system this first cost is usually arrived at by a rough method of cubing or practically by guesswork, which is extremely likely to lead to disappointment on the completion of the building. The drafting of these contracts requires considerable care if they are to be made fair to both parties, and the following are a few points that may well be considered. There are two opinions as to what establishment charges are—one is that they represent, in addition to rents, etc., only the clerical work in the office, the other that they include in addition to this the time for yard supervision and yard and outside foremen.

Again, what prime cost really is raises several questions—the method of the adjusting of trade and cash discounts must be agreed upon. The question as to whether scaffolding, plant, tools, etc., should be taken by hire, by depreciation, or as an establishment charge is important, as is also the running cost of machinery at the works. Again, how are goods taken out of stock to be charged? For instance, a contractor on a lump sum contract for digging finds sand, which he carts into his yard, and again delivers to his prime-cost job: how is this to be charged? Also, if he buys for stock in bulk at a low price, anticipating a rise, which he realises, is the prime-cost charge to be made at the market value or at the price the contractor bought at? There are many other items which will occur to the reader that must be settled between the contractor and surveyor before a definite and fair prime-cost contract can be agreed upon.

CEMENT.

MR. BERTRAM BLOUNT delivered his second lecture on "Cement" at King's College on Friday, December 1, before the Institute of Chemistry, Professor Raphael Meldola, F.R.S., Vice-President, occupying the chair. Proceeding to the more practical details of his subject, Mr. Blount pointed out that owing to our limited knowledge of the chemistry of cement it is necessary to resort to tests of a physical and mechanical nature in order that the user may be able to satisfy himself that the product he employs will meet the demands laid upon it. From their very nature such tests must be arbitrary, and to ensure uniformity they must be carried out under standard conditions which will satisfy the requirements of the consumer, and not lay too heavy a burden on the producer. Mr. Blount was assisted by Mr. Gillett, who demonstrated the method of mixing the cement to be examined, on which so much of the reliability of the tests depends—a point which was illustrated by the story of a firm who undertook to subject a cement to mechanical tests and reported that a briquette had been made and had been found to contain a large number of voids. Since cement is not deliberately used under tension it would appear at first sight to be more logical to appraise its mechanical strength by compressive rather than tensile tests; but as all the tests are merely used as a basis for comparison, and the errors inherent in compression tests largely invalidate the results, it has become customary to omit them in favour of tensile tests of either the neat cement or of mixtures of cement and sand of a given degree of fineness. Much prominence has been given to the advantages of testing mixtures of cement and sand, on the ground that such a method approximates more closely to the conditions obtaining in actual practice, whilst on the other hand it can equally be urged that the sand prescribed by any standard specification will differ widely both in size and shape from the aggregate usually employed on a commercial scale. For the user of cement the question of soundness, *i.e.*, the property of remaining constant and unalterable in volume, must always be of paramount importance, and justifies the decision of the British Standards Committee in adhering to the simple Le Chatelier test, which has not infrequently been subjected to severe and rather adverse criticism in some countries. The methods prescribed in the standard specifications of to-day are virtually the same as those laid down some seven years ago, and the quality and uniformity of the modern product have been so well maintained that almost the only alterations have been in the direction of increased stringency, without thereby laying an unreasonable task upon the producer. The information obtained from the ordinary physical and mechanical tests is sufficient for all practical purposes, and probably will not be usefully augmented until some methods are devised for determining the proximate composition of cement and the setting time of concrete. That the former of these has not yet been realised is shown by the fact that, in spite of numerous attempts, no reliable method exists of ascertaining the content of so-called "free lime" in cement.

Turning to the economic side of the subject, it was pointed out that mainly through the introduction of the rotary kiln the cost of production of Portland cement had been so far reduced as to render possible the application of the material to uses in which lime had previously held the field, so that at the present time a limit can hardly be set to its sphere of usefulness. It was shown that whilst theoretically concrete should weigh about 162 lb. per cubic foot, the figures found in practice rarely exceeds 140 lb., or, in other words, about 14 per cent. consists of voids—a fact not to be ignored by engineers. This consideration at once suggests the possibility of increased economy in construction by using every endeavour to make concrete denser and consequently more efficient. Not only may a saving of material be effected thereby, but a further advantage is gained from the fact that the denser product will be less pervious, and better able to resist the action of water. It must be borne in mind that water continually exerts a solvent action on cement, and it is obvious that the life of the concrete depends in a large degree on its power of resisting penetration.

For structures of concrete exposed to the action of water the liberal use of cement is an obvious means of securing imperviousness; but the employment of some substance, *e.g.*, of the pozzolanic class, which will combine with the hydrated lime set free in the process of setting of cement, is perhaps not so common. In the selection of a suitable aggregate not only must its texture be taken into consideration, but also the possibility of any chemical action that it may exert in the concrete; thus *débris* containing sulphates or easily decomposable silicates is unsuitable. So much has been said of the danger of "magnesia in cement" that the amount allowed has been reduced to quite a low figure. Undoubtedly there has been considerable confusion over this point; the presence of magnesium compounds in structures that have failed under sea-water conditions was really due not to the presence of magnesium compounds in the original cement, but to the formation of magnesium hydroxide by the reaction of the magnesium salts in sea-water with the lime compounds of the cement.

After thus outlining a few of the intricate problems that may be presented to the technical adviser Mr. Blount sketched out a course of training for those who intended to specialise in the subject. After a broad elementary education he insisted on a sound general knowledge of chemistry supplemented, if possible, by some mechanical and engineering training, before attempting to proceed to a post-graduate training in the chemistry of cement. This should be gained in a laboratory within easy reach of some centre of the industry where access to works can be obtained, in order that the student may be able to free himself from the small details of laboratory practice and grasp the broad principles, technological and economic, that underlie success in any chemical manufacture.

In conclusion, Mr. Blount briefly reviewed the present position of our knowledge of the chemistry of cement, and paid a high tribute to the valuable results achieved many years ago by Le Chatelier, which remain but slightly modified to-day.

In moving a vote of thanks to the lecturer and to King's College for the use of the lecture theatre, Professor Meldola expressed the opinion that the Institute had made a very good start with the new scheme of lectures, one of the principal objects of which was to bring senior students and young members into personal contact with acknowledged authorities on various subjects, and he mentioned that the lectures would be published.

CONTINUITY OF EMPLOYMENT IN THE BUILDING TRADE.

WE have received the following letter from Mr. F. J. Gayer:—

"It is no longer a secret that the workmen are considering the advisability of a strike for increased wages. All "in the know" must realise and agree that, as the trade is at its lowest ebb, a more inopportune moment could not be chosen. It is recognised that there is much to argue in favour of the operatives, considering the increased cost of living, etc., but I fear a strike will not remedy the evil, but distinctly aggravate same.

Yours not being a political paper, I do not propose to advance a theory as to the cause and remedy of the bad trade, but the fact remains, in spite of the Board of Trade returns.

Fortunately, the building trade operatives are gifted with more of "God's greatest gift, common sense," than most other workers, and I would suggest for the workers' consideration this theory.

Should they by force succeed in obtaining, say, 1s. per hour, the effect on the already bad state of trade will be to make same distinctly worse. Consequently, whereas now, say, ten out of twelve men are employed at 10½d. per hour, I venture to think the ten will be reduced to about six at the increased rate; therefore collectively they will be worse off.

The state of trade, and keen competition also, outside of our trade has necessitated a much faster pace than hitherto, and very naturally the workmen resent the argument of "Hurry up, and when you have finished you get the sack."

I suggest for consideration, and maybe improvement, the following scheme to combat that evil:—

Each firm of standing, while unable to anticipate the number of workmen to be employed, could register sufficient good, eligible men on the "staff," and when one foreman pays off men they could be transferred to another foreman; any extra or casual labour could be taken on to fill up, and in due course, as circumstances permit, the casuals could be transferred to the regular staff.

This, in a small measure, is carried out on every job, as witness the fact that each foreman has his "followers"; but perhaps some more able builder could formulate a better scheme to remedy the evil referred to."

WAGES IN THE BRISTOL BUILDING TRADE.

THE Bristol Master Builders' Association have decided to increase the rate of builders' labourers to 6½d. per hour, to come into operation on January 1 next. This decision has been arrived at on account of the small average earnings of these men, due to the increasingly casual nature of their employment and the loss of time through inclement weather. The arrangement does not affect labourers employed in the yard and paid a regular weekly wage, or lads or old men, who are to be subject to mutual arrangement as at present. It should be pointed out that the reason the advance is not to take effect immediately is that such a course would constitute a severe tax upon those builders who are engaged upon contract work, and who have based their tenders upon existing rates of pay. —*Bristol Times.*

GENERAL BUILDING NEWS.

NEW CHURCH, LAUNCESTON.

This new Roman Catholic Church has been erected at a cost of about 2,000*l.* from the designs of the late Mr. Arthur Langdon, F.S.A. The building consists of a nave and sanctuary, and a small memorial chapel on the north side. It resembles in many details the Cathedral at Westminster.

MAINDEE CHURCH EXTENSION.

The extension to St. John's Church, Maindee, have been carried out at a cost of 3,300*l.*, under the supervision of Mr. J. Coates Carter, architect, of Cardiff. The contract was carried out by Mr. W. A. Linton, builder, of Newport.

NEW SCHOOL, FARNINGHAM.

The Gorringe Memorial School has been erected at a cost of about 5,000*l.*, by Messrs. W. Owen & Son, builders, of Farnborough. Mr. Edward Finn, A.R.I.B.A., was the architect, and was assisted by Mr. Robinson, the Architect to the Kent Education Committee.

NEW POLICE COURT, BARGOED.

Mr. George Kenshole, of Bargoed, is the architect for this building, which has been erected at a cost of 2,300*l.* The court-room will seat 150 persons, and the contract was carried out by Messrs. Williams & Sons, of New Tredegar.

TRADE NEWS.

The Sanitary Hospital, Boscombe, is being fitted with four of D. O. Boyd's single fire ward stoves with ascending flues, supplied by Messrs. O'Brien, Thomas, & Co., Upper Thames-street, London, E.C., and Excelsior Works, South Bermondsey.

A new riding school is being built at the Duke of York's Headquarters, King's-road, Chelsea, by Messrs. E. A. Roome & Co., of 36, Basinghall-street, E.C., and Homerton, N.E.

Under the direction of Mr. H. R. Crabb, A.M.Inst.C.E., Borough Surveyor, Pembroke, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to the Town Hall, Pembroke.

The additions to the Infirmary, Colchester, are being supplied with Shorland's warm-air ventilating patent Manchester stoves with descending smoke-flues by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

The towns of Penge and Mitcham have been provided with Merryweather's petrol-driven motor fire-engine, with "Hatfield" reciprocating pump. The Penge engine will have a pumping capacity of 350 gallons per minute. In the case of Mitcham a 300-gallon engine has been selected. It is twenty-seven years ago since the Mitcham Fire Brigade obtained their existing horse-drawn steam fire-engine. It is of the Merryweather direct-acting type and is still in service.

APPLICATIONS UNDER LONDON BUILDING ACTS, 1894 to 1909.

AT Tuesday's meeting of the London County Council, the following applications under the London Building Acts were dealt with, the names of the applicants being given in parentheses:—

Lines of Frontage and Projections.

Hackney, Central.—Erection of a building upon the site of Nos. 538 and 540, Kingsland-road, Hackney (Mr. W. Watson for Mr. M. G. Neuberg and Mr. H. P. Grange).—Consent.

Hammersmith.—Erection of buildings upon the site of Nos. 18, 20, and 22, Queen-street, Hammersmith (Messrs. J. S. Quilter & Son).—Consent.

Islington, South.—Projecting one-story shop in front of No. 238, Upper-street, Islington (Messrs. Drivers, Jonas, & Co.).—Consent.

Kensington, South.—Covered way in front of No. 50, Victoria-road, South Kensington (Messrs. G. Godson & Sons for Mr. J. R. MacIsaac).—Refusal.

Kensington, South.—Projecting glass and metal sign at No. 30, Fulham-road, Kensington (Messrs. J. Offord & Sons, Ltd.).—Consent.

Lewisham.—Erection of a building on the southern side of Codrington-hill, Lewisham, with a flank next to Brockley-view (Mr. J. P. Glanville).—Consent.

Norwood.—Porches, oriel windows, and bargeboards to three houses on the southern side of Cornwall-road, Brixton (Messrs. H. Wakeford & Sons for Messrs. J. & R. Bax).—Consent.

St. George, Hanover-square.—Erection of a building upon the site of Belgrave Chapel on the north-western side of Halkin-street, Westminster (Messrs. G. Trollope & Sons and Colls & Sons, Ltd.).—Consent.

St. Pancras, East.—Erection of a building on the southern side of Clifton-road, St. Pancras, to abut upon the north-eastern side of Clifton-villas (Messrs. James Laycock & Bellamy for Messrs. Jones Brothers (Holloway), Ltd.).—Consent.

Wandsworth.—House on the southern side of Woodbourne-avenue, Streatham (Messrs. Holliday & Stanger).—Consent.

Woolwich.—Eight houses on the southern side of Dunvegan-road, Eltham (Mr. J. J. Bassett).—Consent.

Width of Way.

Hampstead.—Addition to No. 57, Belsize-lane, Hampstead (Mr. F. Adcock for Mr. F. Hodgson).—Consent.

Width of Way and Lines of Frontage.

Hammersmith.†—Billiard-room addition at the rear of No. 117, Goldhawk-road, Hammersmith, abutting upon the eastern side of Avenue-road (Messrs. G. Elkington & Son for the Avenue Property Company, Ltd.).—Refusal.

St. Pancras, North.—Projections in advance of a proposed church on the southern side of Preston-street, Kentish Town (Mr. E. C. Shearman for the Rev. Gordon Smythe).—Refusal.

Woolwich.—Addition to a steel and iron building at the premises of the London Flambo Fuel Company, Ltd. (Mr. J. M. Kennard for the London Flambo Fuel Company).—Consent.

Woolwich.—Temporary wood and iron additions at the premises of the London Flambo Fuel Company upon a site on the western side of a footpath leading northwards from Gallions railway-station, Beckton, North Woolwich (Mr. J. M. Kennard for the London Flambo Fuel Company).—Consent.

Width of Way and Construction.

Hammersmith.—Iron shed and a wood and iron lean-to addition thereto on the southern side of Down-place, Hammersmith (Messrs. B. Bailey & Co.).—Consent.

Lines of Frontage and Construction.

Hackney, Central.—Wood and glass studio on the roof of the one-story shop at No. 269, Mare-street, Hackney (Messrs. Hodson & Whitehead for Messrs. Hodson, Rowlandson, & Hodson).—Refusal.

St. Pancras, West.—Temporary wood and iron buildings upon a site over the London and North-Western Railway on the south-western side of Delancey-street, St. Pancras, and the omission of a layer of concrete over the sites of the said buildings (Messrs. Dolman & Pearce).—Consent.

Space at Rear.

Chelsea.—Building upon the space at the rear of No. 214, Pavilion-road, Chelsea (Mr. J. Hudson).—Consent.

Kensington, North.—Erection of a building upon the site of No. 13a, Pembridge-place, Kensington, with an irregular open space at the rear (Mr. J. S. Beard for Sir W. E. Cooper and others).—Consent.

St. George, Hanover-square.—Erection of buildings upon the site of Nos. 55, 56, and 57, Grosvenor-street, and No. 24, Davies-street, Westminster, so far as relates to the erection of additions to the corner building (Mr. E. Wimperis for Lieut.-Col. Clifford Probyn).—Consent.

Space at Rear and Alteration of Building.

Peckham.—Retention of No. 60, Rye-lane, Peckham, without an open space at the rear exclusively belonging thereto (Mr. F. E. B. Blanc for the South-Eastern Electric Theatres, Ltd.).—Consent.

Separation and Alteration of Building.

Strand.—Alterations and additions at No. 7, Cork-street, Westminster (Mr. H. Cubitt for Mrs. Pope).—Consent.

Formation of Streets.

Clapham.—Formation or laying out of a new street for carriage traffic in continuation eastward of Roseneath-road, Clapham Common (Messrs. E. Evans & Sons for Mr. J. Cobeldick).—Consent.

Lewisham.—Formation or laying out of a new street for carriage traffic to lead out of the northern side of St. Midred's-road, Lee (Mr. G. A. Lansdown for the Rt. Hon. the Earl of Northbrook).—Refusal.

Alteration of Buildings.

Kensington, North.—Addition at the rear of No. 72, St. Ervan's-road, Kensington, without complying with the provisions of the First Schedule to the said Act (Mr. G. R. Holmes for Mr. A. R. Shoubridge).—Consent.

Kensington, South.—Erection of a lantern light at No. 62, Kensington High-street (Messrs. J. Barker & Co., Ltd.).—Consent.

Paddington, South.—One-story shop at No. 38, Queen's-road, Bayswater (Messrs. Veale & Gibbs).—Consent.

Strand.—Alterations at Nos. 2, 3, and 4, New Coventry-street, Westminster (Messrs. Treadwell & Martin).—Consent.

Cubical Extent.

Deptford.—Additional cubical extent in respect of proposed additions to the Key Glass Works, Coldblow-lane, New Cross (Mr. J. O. Cook for the Key Glass Works Company, Ltd.).—Refusal.

Uniting of Buildings.

Brixton.—Formation of two openings in the party wall between No. 1, Electric-avenue and No. 451, Brixton-road, Brixton, at the first-floor level (Messrs. Chappell & Co.).—Consent.

Finsbury, Central.—Uniting of Nos. 80 and 82, Clerkenwell-road, Finsbury, at the basement and fourth-floor levels (Messrs. Eiloart for Messrs. Butler & Crispe).—Consent.

The recommendation marked † is contrary to the views of the Metropolitan Borough Council concerned.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERCARN.—School (5,000*l.*); Mr. J. Bain, architect, Shire Hall, Newport, Mon.

Blackburn.—Sanatorium for the Charity Organisation Society.

Blackley.—Proposed church (6,000*l.*); Vicar, St. Peter's Church, Blackley.

Blackpool. — Verandah and shelter on promenade (2,000*l.*); Mr. J. S. Brodie, Surveyor, Blackpool Town Council.

Bramford.—School; Mr. J. H. Hume, Secretary, Education Committee, Ipswich Town Council.

Brighouse.—Baths, Milroyd-street (6,000*l.*); Mr. S. S. Haywood, Surveyor, Brighouse Town Council.

Broadstairs.—School, Lloyd Estate; Mr. W. H. Robinson, Caxton House, Westminster, S.W.

Castlehill.—School (5,170*l.*); Mr. B. Lumb, builder, North-street, Todmorden.

Chasetown.—School; Architect, care of the Trustees, St. Joseph's Roman Catholic Church, Chasetown.

Chertsey.—School (10,135*l.*); Messrs. Jarvis & Richards, architects, 10, Queen Anne's-gate, S.W.

Dewsbury.—Extensions to infirmary; Mr. W. Hanstock, architect, Branch-road, Batley.

Dumbarton.—Proposed mortuary; Mr. J. Briggs, Surveyor, Dumbarton Town Council.

Dutton.—Adaptation of Durham Lodge into children's home; Mr. G. F. Ashton, Clerk, Board of Guardians, Runcorn.

Earby.—Picture palace and three lock-up shops, New-road, for the Barnoldstock Palace Company.

Eastbourne.—The following plans have been passed:—Addition, "Granville Hill," Silverdale-road, for Mr. H. G. Watson; Mr. B. Earp, architect. Addition to Cottage Homes for the Trustees; Mr. C. Crisford, architect. Alterations to Greystone-buildings, South-street, for Messrs. G. E. Maynard, Ltd.; Mr. A. Ford, architect. Addition to Royal Marine Hotel, Royal Parade, for Colonel Cardwell; Mr. John Trowell, builder. Plans have been lodged for an addition to the Lion Inn, Sea-side-road, for Messrs. Harvey & Son; Mr. A. Ford, architect.

Eastleigh, S.O. (Hants).—Shops, Leigh-road, for Messrs. Strong & Co., brewers, Romsey.

* See also our list of Competitions, Contracts, etc., on another page.

Eccles.—Plans have been passed for a picture theatre, Church-street and Corporation-road, for Mr. J. Knight, architect.

Egham (Surrey).—School; The Governors, Strode Charity, Egham.

Festiniog.—Alterations and improvements at school (1,018*l.*); Messrs. Evans & Griffiths, builders.

Foleshill.—Seven houses and shop, Windmill-lane and Foleshill-road, for the Lockhurst-lane Co-operative Society.

Forfar.—Drill-hall; Mr. Carver Brymon, architect, Forfar.

Frodingham.—Enlargement of St. Lawrence's Church (5,000*l.*); Sir Charles Nicholson, Bart., architect, 2, New-square, W.C.

Glasgow.—Buildings for Messrs. Alexander Mathieson & Sons, Ltd., Saracen Tool Works, East Campbell-street, Glasgow.

Grangemouth. — Buildings, East End (2,000*l.*); Mr. D. A. Donald, Surveyor, Grangemouth Town Council.

Great Harwood.—Reconstruction and erection of heald and reed works for Messrs. T. Westby & Sons.

Greenock.—Trades' Hotel, Bogle-street (434 beds), for Mr. David John Garrett.

Greetland. — Sunday-school; Vicar, St. Thomas's Church, Greetland.

Grimsby.—Spice factory; Mr. H. S. Caping, architect, Court-chambers, Grimsby.

Hanley.—Bottling stores; Mr. C. J. Cowlishaw, architect, Stafford-street, Hanley.

Larne.—Thirty-nine houses (120*l.* each); Surveyor, Larne Rural District Council.

Leith.—Ten houses, Restalrig-road, for the Edinburgh Co-operative Building Company.

Lincoln.—Parish hall, Sansthorpe-street; Vicar, St. Andrew's Church, Lincoln.

Liverpool.—Headquarters (9,500*l.*) for the Liverpool University Settlement.

Marple.—Grocery stores for the Compstall Co-operative Society; Mr. M. Warrington, builder, Hyde.

Nantwich.—Extensions to church schools (1,600*l.*); the Vicar.

Northampton.—The following plans were passed:—Additions to Bottling Department, Bridge-street, for Messrs. P. Phipps & Co., Ltd.; three houses, Ashburnham-road, for Mr. A. Glenn; thirteen houses, Sharman-road, and two houses, Spencer-street, for Mr. G. F. Sharman; four houses, Lloyd-road, for Mr. A. Wilford; addition to laundry, Kingsley Park-terrace, for Mr. C. B. Taylor; four houses, Raymond-road, for Messrs. E. D. Sharman & Son; additions to factory, Greenwood-road, for Messrs. C. & E. Lewis; sixteen houses, Spencer Bridge-road, for Mr. A. G. Godwin; thirteen houses, Birchfield-road and Abington-avenue, for Mr. A. P. Hawtin; six houses, Broadway, for Mr. W. Heap. A plan has been lodged for ten houses, Knight's-lane, for Mr. W. S. Brown.

Padiham.—Extension to premises to hold 400 extra looms for the Albion Loom and Power Company.

Petersfield.—Proposed building; Secretary, Working Men's Institute, Petersfield.

Radcliffe.—Sixty houses, North-street; Mr. W. L. Rothwell, Surveyor, Radcliffe Urban District Council.

Royton.—Cotton-spinning mill for the Park and Sandy-lane Spinning Company; Mr. A. Turner, architect, Clegg-street, Oldham.

St. Anne's. — Extensions to St. Anne's School; the Managers.

Salford.—Rebuilding Lodge, Peel Park (445*l.*); Messrs. Fearnley & Sons, builders, Pendleton. Buildings to house slab-making machinery (4,400*l.*); Messrs. J. Gerrard & Sons, Ltd., builders, Swinton. Alterations to workshop at Electricity Works; Messrs. C. S. Allott & Son, architects, Manchester. The following plans have been passed:—Alterations and extensions to Sandywell Brewery, Springfield-lane; the Proprietors. Alterations and extensions to mantle factory, Trafalgar-street, Broughton; the Proprietors.

Tanygrisian.—Alterations and improvements at school (636*l.*); Messrs. Evan Griffith & Son, builders, Festiniog.

Tunbridge Wells. — Secondary school (8,360*l.*); Mr. W. T. Burrows, builder, Maidstone.

Upper Arley.—Structural alterations to the Church School; the Managers.

Walker.—Enlargement of Roman Catholic School (200 extra places); the Trustees.

Wallsend-on-Tyne. — Proposed laundry; Secretary, Co-operative Laundries, Ltd., Co-operative Hall, Wallsend-on-Tyne.

Warrington.—The following plans have been passed:—Thirteen houses, Cowdell-street, for Mr. W. Heesom; additions to chapel, Golborne-street, for the Trustees of the Golborne-street Baptist Chapel; fifteen houses, off Ashwood and Briarwood avenues, for Mr. W. Cooper; club, St. Mary's-street, for the Trustees of the Junior Conservative Association; alterations to Nos. 77 and 79, Bridge-street, for Mr. Henry Thornton; extension to works, Factory-lane, for Messrs. J. Crosfield & Sons, Ltd.

Winchester.—Theatre; Messrs. Houston & Houston, architects, 1, Long-acre, W.C.

Wrexham.—Chapel; Messrs. Collins & Godfrey, builders, The Cross, Tewkesbury.

Ystradgynlais.—Council offices (1,500*l.*); Mr. T. Watkins, Surveyor, Ystradgynlais Rural District Council.

THE MANSION HOUSE.

On Thursday last week the Court of Common Council referred to Committee a proposal to deal with the Mansion House, said to be in an uninhabitable condition.

The matter was that forwarded by Mr. Carl Hentschel, who contended that the Mansion House was not in good condition, being incapable of housing a Lord Mayor in comfort and his staff in decency. Proceeding, he said:—

"Economy run mad is the surest dog to find itself gasping under a cold douche of hasty and enormous expenditure.

The method is to keep down the expenditure, and each Chairman of the General Purposes Committee asks first, not what is necessary to be done, but "Can we save on our last year's bill?" It is a mistake, and the Corporation will, I am afraid, find it so. Even under our present method, however, our expenditure goes up. It is bound to, for as the Mansion House gets into a worse state the "patching" becomes more difficult and more expensive.

The fact is that really little has been done to the Mansion House beyond an annual cleansing and redecoration. I have been back for a considerable period in the accounts, and am confirmed in this view. There was a large expenditure between 1700 and 1800 (5,043*l.*), but that was really for roofing in the saloon, altering the interior, putting a new roof on the Egyptian Hall, and other similar work. There were repairs to the extent of 4,000*l.* in 1832, when Sir John Key had to vacate it for a time; and alterations in 1847, while the foundations have constantly been a source of trouble. But during the last half-century, at any rate, nothing material has been done to modernise, to improve, or to meet the altered circumstances.

The only exception I can find to this generalisation has reference to the drains, which in 1888 became so obviously in need of attention that they were thoroughly overhauled, at a cost of some 2,000*l.*—and not before it was required. I do not wish to frighten people, but I invite members to read the Report of the Banner Sanitation Company on untrapped drains and defective sewers, also without traps. In 1897 the drains were tested, at the cost of the then Lord Mayor, since when nothing serious has been done. To-day I say unhesitatingly that matters in the sanitary direction are bad. The lower portions of the house are disgraceful. Let your Medical Officer of Health inspect these lower regions, and I am sure he will condemn the arrangements as insufficient, inefficient, and altogether out of date.

Here are a few of the opinions I have had from past Lord Mayors and other Aldermen:—

"I think it is hardly fit for the Lord Mayors to live in, and every year it is becoming worse.

I entirely agree with you that the lower floor does need absolutely to be remodelled; the kitchen and footmen's departments are not worthy of the Mansion House.

I agree with you that nothing but remodelling the lower floor of the Mansion House will suffice to bring it up to modern ideas of sanitation or even decency.

You need a first-rate architect specially skilled in the reconstruction of mansions, or large London houses. . . . It ought to be well done, and to do it well you require the best advice that can be obtained.

We should not like to house our private staff in the way in which the official staff of the Lord Mayor is housed.

Drastic alterations are necessary, especially in the domestic and kitchen quarters, at the Mansion House.

The Mansion House . . . is old-fashioned and out of date, and it is certainly no credit to the Corporation. . . . The sanitary arrangements are such that no modern householder, or even County Council would permit.

Paper is placed over paper, paint over paint, and nothing is ever properly done.

The servants' departments are in a most deplorable condition, and calculated to do serious discredit to the Corporation. The general condition of the Mansion House requires the most careful and generous consideration at the hands of the Court. I think this is a necessity, not only for the comfort and convenience of the Lord Mayor for the time being and his family, but for the credit of the City itself."

Those opinions, I venture to think, prove my case for inquiry. The works needed could be accomplished.

Now, what I ask the Court to do is to examine the whole building thoroughly. Let it be discovered whether I am, as I say I am, backed by expert opinion, and let us attempt to modernise and improve. Let us make the bedrooms adequate and hygienic, let us endeavour to make the public apartments adequate for the work they are called upon to do, and let us see that the kitchens, which play such an important part in the hospitality of the Mansion House, are worthy of the Lord Mayor's guests. When the matter has been through the mill of a thorough inquiry let expense be faced as one day it will certainly have to be faced.

To those, however, who would emphasise the difficulties of carrying out any big scheme of works on account of the Lord Mayor's presence I would say this:—We have lately become very familiar in London with very quick construction. The method came, I think, from America, but Englishmen have adopted and improved it, and combined rapidity with solidity of workmanship. To-day the works needed at the Mansion House could be accomplished without disturbing the Lord Mayor. All could be done in six weeks in August and September. I have only to point to the rapidity of the construction of the New Opera House, the Waldorf and the Savoy Hotels, to convince my colleagues of the feasibility."

In connexion with the above we take the following from the *City Press*:—

"When Mr. Hentschel's motions were reached Mr. Leo Taylor rose to complain of the action taken by Mr. Hentschel in circulating matter in the nature of a Report before it had been before the Court. In the ordinary way a Committee would have considered the matter, and it would have come before the Court, and been ordered for printing. Mr. Fred Link thought that Mr. Hentschel should be thanked, and not censured, for placing the whole case before the Court. Mr. Hentschel, in the course of a personal explanation, said that he did not give his pamphlet to any member of the Press until that morning. Mr. Hentschel then formally moved the resolution standing in his name. In seconding this, Major Humphery said he would not waste time by making a long speech, but he certainly thought that the two questions raised deserved careful consideration in Committee. Mr. Bird complained that Mr. Hentschel had not paid attention to the value of the Mansion House site. He moved that the General Purposes Committee should be instructed to consider the question of transferring the Lord Mayor's official residence to a more convenient part of the City, and selling the site of the present Mansion House. Mr. Bird's amendment was not seconded. Mr. Deputy Wallace moved an amendment to the effect that the General Purposes Committee should be asked to report forthwith as to the condition of the Mansion House, with suggestions having particular regard to the cost. Mr. Hentschel said he would gladly welcome that amendment. The Lord Mayor said he had not so far had time to read Mr. Hentschel's pamphlet. Indeed, he had not had time since becoming Lord Mayor to go over the Mansion House. The Lady Mayoress, who had heard a great deal about sanitation, and knew much about it by reason of her parish work, had, however, reported to him that the General Purposes Committee were recently shown at the Mansion House some things that ought not to exist. She did more. She said: "If I knew them to exist I should be justified in calling in the sanitary authorities." He mentioned that for the guidance of the Court. The Rev. P. Clementi-Smith suggested that it might be well to refer the question to the Sanitary Committee. On a show of hands Mr. Hentschel's first recommendation was negatived, and the second (Mansion House Improvements) was, by general consent, superseded by Mr. Deputy Wallace's amendment, which, to a large extent, satisfied the object that Mr. Hentschel had in view.

Mr. Carl Henstchel afterwards informed the Court that, as the matter was very urgent, he had obtained three tenders for rewiring the Egyptian Hall, the lowest being for 192*l.* He asked the Court to sanction its acceptance. The Court readily agreed."

THE SCIENCE OF VENTILATION.

AT a meeting of the Royal Scottish Society of Arts, Edinburgh, held on November 27, a paper was read on the subject of ventilation by Capt. Geo. A. Chaddock, the patentee of the Chaddock mechanical window. Capt. Chaddock, in prefacing his scientific explanations, said that the advocates of natural ventilation did not appear to realise the importance of even heat distribution as well as air distribution. He contended that when cold air enters a room it should be regarded as matter seeking warmth, which scientific research showed it would have at any cost. Therefore, unless temperature matter in the form of artificial heat was immediately available, the cold air would gather heat by robbing the inmates, which it did to their intense discomfort. The first consideration is temperature or even heat, as well as air distribution, in conformity with nature's principles ruling in our oceans of air and water.

The lecturer gave an account of the effects which had been realised in many public schools and institutions from the adoption of the mechanical windows installed by the Chaddock Ventilation Company. Illustrations and diagrams relating thereto were shown, the principle of the system being to produce a continuous and equable mingling of the fresh air with the artificial heat supplied, thus eliminating draughts, and maintaining a standard of purity equal to that of the actual open air, though regulated, of course, to any desirable temperature. On the question of ventilation in regard to schools, the lecturer's contention is that if air is allowed to move on the line of least resistance it can only do so by passing out of a classroom into a central hall or corridors, thus polluting other portions of a building. The great bulk of schools in England are, he said, thus contaminated, and for this reason the Board of Education are now prohibiting central halls. The system of air moving on the line of least resistance was thus not only dangerous as a means of circulating impurities, but it tended to the maximum of discomfort, in setting up draughts and irregularities of temperature, and had, therefore, been a principal reason for the introduction of artificial systems. In contrast to this, if the rotary air movement was adopted, outlets and inlets being on the same side of the classroom, the air would pass out on the side on which it entered, therefore on the line of greatest resistance, thus ensuring a steady, even movement, and thereby eliminating draughts and irregularities of temperature. This procedure, he said, admits of open-air treatment all the year round, and, as the system necessitates complete isolation of classrooms, it spelled for the general health of those in the building; also excluding noise from other rooms, instruction can be carried on to advantage.

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly sitting of this Board was held on Saturday, when the following matters were disposed of:—

Cleaning and Repairs and Painting Works.—On the recommendation of the Hospitals Committee, it was agreed that such cleaning and painting works and repairs as may be authorised by the Committee be carried out at the infectious hospitals and wharves during 1912, either by direct labour or by contract, as they may determine after consultation with the Works Committee.

Darenth Asylum.—For the purpose of separating the various grades and sexes of the feeble-minded who are to be transferred to the Darenth Asylum it was decided to erect fencing and gates at an estimated cost of 670*l*.

Tooting Bec Asylum.—Certain alterations in the heating arrangements at the above Asylum were authorised.

OBITUARY.

Mr. I. C. Johnson.

The death, on November 30, at Gravesend, is announced of Mr. Isaac C. Johnson, J.P., in his 102nd year. Mr. Johnson was principal of the firm of Messrs. I. C. Johnson & Co., Ltd., cement manufacturers. He founded cement works at Gateshead-on-the-Tyne, where he served as Mayor, and at Cliffe and Greenhithe, in Kent.

LEGAL COLUMN.

Repairing Covenants in Leases.

In our issue for March 31 last we briefly noted a decision in the Court of Appeal, Zurcott *v.* Wakeley, under the title of "Landlord and Tenant." This case is now fully reported in the *Law Times*, and it raises questions of such importance to lessors and lessees that we propose examining the case and the judgments delivered at greater length.

The defendants were assignees of a lease of premises in Hatton-garden, which were some 200 or 300 years old. The lease was granted in 1881 for twenty-eight years, and expired on March 25, 1909. On February 11, 1909, just before the lease expired, the London County Council under the London Building Acts gave the owner of the premises notice that the front eastern external wall to the level of the ground floor was in a dangerous condition, and requiring them to take it down and shore up the premises. The defendants disputed the necessity for this; but an arbitrator under the Building Acts determined the requirements to be necessary. The defendants continuing not to comply with the notice, an order was made by a magistrate on the owner requiring him to take down the wall. The owner, the plaintiff in this action, then pulled down the wall and rebuilt it, and claimed the costs incurred in these operations from the defendants, the assignees of the lease under the covenants to repair contained in the lease. The covenants in the lease were as follows:—That the lessees should "from time to time during the said term, at his and their own proper costs and charges, well and substantially repair . . . and keep in thorough repair and good condition all the said premises thereby demised, with all fixtures and appurtenances thereto belonging, and all buildings, improvements, and additions. . . ," and yield up the said premises, buildings, etc., at the end or sooner determination of the said term "being so repaired and kept together."

It is to be observed that the lease was one which placed a heavy responsibility upon the lessee to "well and substantially repair" and "to keep in thorough repair and good condition." The contention of the defendants was that, despite these very stringent covenants, he was under no liability to rebuild this wall, which had perished so much by age that it could not be restored, but must be made anew. In this connexion it is important to note that the Official Referee, to whom in the course of the proceedings the matter had been referred, had found that this wall was decayed by age and could not have been patched or repaired, it could only be rebuilt, but that the whole building did not require rebuilding. The Divisional Court held that, as only a portion of the structure was affected, the lessee could be called upon to renew this portion of the structure, as this was not an instance of a case where a new structure had to be substituted for an old structure.

The Court of Appeal affirmed the judgment of the Divisional Court, and, as they very fully considered the cases and the law relating to this subject, we may usefully refer to the judgments in some detail.

The Master of the Rolls thus stated the defendants' contention:—"The effect of time and the elements and the natural effect of old age has destroyed this wall, and it is not due to any negligence on our part. We cannot help it. We are not liable to make it good." He answered this contention by asking himself this question:—"Is what has happened of such a nature that it could be fairly said that the character of the subject-matter of the demise, or part of the demise, in question has been changed, or is it simply injury to a subsidiary portion as distinguished from the whole?" He held it was restoration of a subsidiary portion, just as much as would have been the renewal of some rafters in a roof, or the replacing of an earthenware pipe, or the renewal of window-frames.

Lord Justice Fletcher Moulton considered the several covenants separately. "To keep in good condition" he held to impose an obligation varying with the age of the premises, but always involving a liability to maintain the house as a house, even if by replacing part after part the result was in the end to replace the whole.

"To keep in thorough repair" he interpreted in much the same sense, but as not involving a wider obligation. Whilst "to repair" he held to involve replacement so long as the house exists as a structure.

Lord Justice Buckley came to the same conclusion—"renewal as distinguished from repair is reconstruction of substantially the whole subject-matter."

These judgments contain a very helpful exposition of the law relating to such covenants, but one word may be said upon the cases which were also carefully discussed in the two Courts.

A certain sentence occurring in the judgment of Chief Justice Tindal in an old case, Gutteridge *v.* Munyard, was much relied upon by the defendants:—"What the natural operation of time flowing on effects, and all that the elements bring about in diminishing the value, constitute a loss which, so far as it results from time and nature, falls upon the landlord."

In a well-known handbook this case is cited as an authority for the proposition:—"The tenant is not liable for dilapidations resulting from natural decay."

This case is somewhat differently reported in two reports, and the Judges in both Courts in Lurcott's case laid it down that this sentence of the Chief Justice, taken by itself, would not represent the law. It may also be observed that the covenants in that case were by no means the same as those in Lurcott's case, and "reasonable use and wear and tear" were also excepted.

As regards other well-known leading cases, it will be seen that the present decision is brought in line with them as follows—Proudfoot *v.* Hart. The Court approved.

The covenant there, was to keep the premises in good tenantable repair, and so leave the same. Some of the floors were rotten, and the Court of Appeal held that they must be renewed. "Tenantable repair" was thus defined:—"Such repair as, having regard to the age, character, and locality of the house, would make it reasonably fit for the occupation of a reasonably-minded tenant of the class who would be likely to take it."

The cases distinguished from the facts of Lurcott's case on the ground that the operation required to be done was more than repair and amounted to a reconstruction of the subject-matter are—Lister *v.* Lane (1893), where a house was erected upon a timber platform which had rotted away, and it was only possible either to pull it down or to underpin it to a depth of 17 ft. and build up a brick or other structure for a new foundation; Wright *v.* Lawson (1903), where a bow window could not be erected as before on cantilevers, but would have been an entirely new structure, supported by vertical supports from the ground; and Torrens *v.* Walker (1906)—noted the *Builder*, May 19, 1906—where a landlord had covenanted to repair outside walls on notice, and two of the walls were in such condition that they would have had to be pulled down from top to bottom. This house was triangular in form at the junction of two streets, and it was held that the renewal of these two walls would have practically destroyed the whole subject-matter of the covenant. In this case there was a further point, that no notice had been given of want of repair until after the premises were pronounced to be dangerous, and this alone serves to distinguish it from the present decision.

These cases show the necessity of carefully considering the nature of the covenants to repair before entering into leases, especially where the subject-matter of the demise is an old building.

Fire Precautions: Appeals to Tribunal of Appeal.

The decision given by a Divisional Court in the case of Clarke *v.* London County Council, which was reported at length in our issue of last week, decides a simple but important point under the London Building Acts (Amendment) Act, 1905. In our "Notes" (the *Builder*, June 25, 1910) we have already explained this question, but, as the report of the recent appeal is necessarily voluminous, our readers may find it useful if we again shortly summarise the point in issue in this case.

By sect. 7, sub-sect. 1, in the case of certain buildings plans have to be approved by the County Council or (in the event of an appeal) by the Tribunal of Appeal, showing the means of escape in case of fire.

By sub-sect. 2 of the same section the buildings or parts of buildings subject to this legislation shall not be occupied or let for occupation "until the Council shall have issued a certificate (or, in the event of an appeal), the Tribunal of Appeal shall have determined that such building has been provided with means of escape in accordance with plans approved as aforesaid by the Council or the Tribunal of Appeal, as the case be, and that the conditions (if any), subject to which such plans were so approved, have been complied with."

Sect. 22 provides that an appeal may be taken to the Tribunal of Appeal within two months after "the refusal or conditional grant by the Council of their approval of any plans pursuant to sect. 7; or the refusal by the Council to issue a certificate pursuant to the same section."

In the case under consideration the Council had given conditional approval of the plans submitted; there were in all thirty-six conditions, all of which were complied with, except that which provided "that the staircases be separated from the rooms and corridors on all floors by fire-resisting partitions or walls, and all openings in such separations to be hung with self-closing fire-resisting doors or windows glazed with fire-resisting glazing."

This requirement was neither complied with nor appealed against; but on the building being completed a certificate under sect. 7, sub-sect. 2, was applied for, and, when refused by the County Council, appeal was made to the Tribunal of Appeal, and on the hearing of this appeal the Tribunal of Appeal decided, not that the conditions had been complied with under sub-sect. 2, but that "the building had been provided with all such means of escape therefrom in case of fire as could be reasonably required in the circumstances of the case."

The Divisional Court have decided that on an appeal under sub-sect. 2, where the question to be determined is whether the building has been provided with means of escape in accordance with the plans approved or conditions imposed, the Tribunal of Appeal had no jurisdiction to reopen the whole question and to then determine whether the building was reasonably provided with means of escape. In other words, the appeal given by sect. 22 is twofold. First an appeal on the reasonableness of the means of escape provided by the plans under sub-sect. 1; second, an appeal as to whether the plans have been carried out or the conditions complied with under sub-sect. 2, but the subject-matter of each appeal is separate and distinct. Had the building owner desired to test the reasonableness of the condition, he should have appealed within the time allowed and before the building was completed.

A somewhat similar requirement was contested and appealed under sect. 9, in the case of an existing building, in Berkeley Hotel Company *v.* London County Council (the *Builder*, March 12, 1910).

Laying Out a New Street.

In the recent case of Attorney-General *v.* Dorin, a Judge of the Chancery Division was called upon to decide whether a builder who simply builds a row of houses upon his own land by the side of a roadway is "laying out" a new street within the meaning of by-laws, which require new streets to be of a certain prescribed width at least. Between the houses and the road a strip of land was left, over which the cottages or houses were approached through gates in the hedge over circuit paths; but the leasing of this intervening strip appears to have had nothing to do with the decision. The Judge held that, although for certain purposes under the Public Health Act, 1875, the erection of this row of houses would make the road a new street, yet under the by-law the defendant had not "laid out" a new street. In holding this the Court was following a decision of the Court of Appeal in Devonport Corporation *v.* Tozer (1903), in which case it was held that there must be something in the nature of a physical laying out as distinguished from a metaphorical laying out.

Possibly the decision may be summarised by saying that, although the erection of a row of houses may convert a road into a new street so as to place the owner under statutory obligations to contribute to such expenses as paving, etc., it does not bring the owner within a by-law relating to streets actually newly erected.

Had the present decision been otherwise, it would appear that the owner could only build upon his land if he consented to dedicate a slip to the public as an addition to the existing roadway. The case is at present very shortly reported, and we may have to refer to it again.

LAW REPORTS.

HIGH COURT OF JUSTICE—CHANCERY DIVISION.
(Before Mr. Justice SWINFEN EADY.)

Westminster Nuisance Case:
Halcyon Club, Ltd. *v.* The Westminster Corporation.

THIS case was heard on the 24th ult. upon a motion by the plaintiffs for an interim injunction to restrain the defendants until the trial or further order from committing a nuisance by erecting or maintaining against a wall of the plaintiffs' premises in Cork-street, Westminster, a public convenience, and from trespassing by erecting the same, and for a mandatory order to compel the defendants to remove a convenience which had been temporarily erected.

The defence was that, as the sanitary authority, the defendants had the right to erect such a convenience in any suitable public place so long as they did not create a public nuisance.

Mr. F. Russell, K.C., and Mr. Latter appeared for the plaintiffs, and Mr. Morton Smith for the defendants.

Mr. Russell said that the Corporation had passed a resolution that they would do nothing further in the matter until the trial, but he did not think that was satisfactory, owing to the nuisance by smell and in other respects. The club was a ladies' club. If the plaintiffs were wrong in their action the defendants intended to take down the present erection, which was temporary, and re-erect a new one. Plaintiffs wanted an undertaking which would satisfy them until the trial.

Mr. Morton Smith said that the erection had been there since 1863, was re-erected in 1889, and was there when the negotiations took place for acquiring the plaintiffs' premises as a ladies' club. Men were employed to cart away the property of the Corporation last April. Afterwards it was found necessary to re-erect it for the Coronation, and after removal for a few hours, by mistake of the contractor, it was re-erected temporarily, and was used down to the commencement of the present action. The difficulty was that if it was closed the nuisance might not cease. In addition to that, the freeholder was not a party to the action. He (counsel) contended that there ought to be an undertaking by the freeholder as to the rights of the Corporation.

His Lordship said there need be no abandonment of any legal rights which the Corporation possessed. The only order that he would make would be that the costs of the motion should be costs in the action.

COURT OF APPEAL.
(Before the MASTER OF THE ROLLS and Lords Justices FLETCHER MOULTON and FARWELL.)

Action against Builders and Contractors:
Dorman, Long, & Co., Ltd. *v.* H. Willcock & Co.

THIS case was heard last week upon the appeal of the defendants from a judgment of Mr. Justice Channell in the King's Bench Division in favour of the plaintiffs.

Mr. J. R. Atkin, K.C., in support of the appeal, said that the plaintiffs brought the action against the defendants, a large firm of builders and contractors, at Wolverhampton, to recover 88*l.* 13s. in the following circumstances:—In September, 1907, the defendants entered into a contract for the erection of a technical college at Bristol, the contract price being about 29,000*l.* Under the contract the plaintiffs, who carry on business at Middlesbrough, were appointed by the architect, Mr. Cross, the sub-contractors for the supply of steelwork for the building. By the contract, before the sub-contractors and various tradesmen could get payment for work and materials supplied it was a condition that they should get the certificate of the architect, and when that certificate was given the defendants, as the contractors, had to pay the sub-contractors, etc., the sums so certified by the architect. Plaintiffs supplied steelwork for the building, and sent the invoices in the usual way to the builders, from time to time receiving payments on account upon the certificates of the architect. In July, 1909, when the work was practically finished, the plaintiffs sent in their statement of account for the final balance of the steelwork, and the architect gave his final certificate on October 22, 1909, for 2,819*l.* 14s. 2d., in which he included the sum due to the plaintiffs as made up from the statement of account supplied. Plaintiffs afterwards discovered that they had omitted by mistake 88*l.* 13s., the price of three stanchions supplied for the building. The architect declined to open up the matter, and, the defendants declining to pay, the present action was brought. Defendants said that, of course, if the building owners would pay the amount they would pay it over to the plaintiffs, but otherwise they could not admit that they were liable, and their defence was that the certificate of the architect was a condition precedent to the plaintiffs' right to sue. Plaintiffs, however, contended that it was the duty of the defendants, under the contract in the circumstances of the case, to go to arbitration with the building owners on the matter, so as to get the mistake rectified, and that by their not doing so defendants had waived the point as to the architect's certificate being a condition precedent to right to sue, and Mr. Justice Channell so held. He (Counsel) contended that the learned Judge was wrong, and that he should have entered judgment for the defendants.

Mr. Sanderson, K.C., having supported the judgment of Mr. Justice Channell on behalf of the plaintiffs,

Their Lordships allowed the appeal, holding that in the circumstances the plaintiffs had not the right upon the construction of the contract to call upon the defendants to have the certificate of the architect reviewed, and that, therefore, the defendants were not liable to the plaintiffs for the 88*l.* 13s.

KING'S BENCH DIVISION.
(Before Mr. Justice COLERIDGE.)

The Validity of an Architect's Certificate:
Ashwell & Nesbitt, Ltd. *v.* Allen & Co.

THIS case was heard on Monday, November 27, and the following day, and matters of considerable interest to builders and architects were discussed.

The plaintiffs, Messrs. Ashwell & Nesbitt, Ltd., of Leicester, sued Messrs. Allen & Co., of Westminster, for 377*l.* for work done and material supplied to a building in Regent-street, London, under a contract of May 12, 1909. The defendants denied that the plaintiffs did the work or supplied the materials, and they further pleaded that the sum in question applied to work which, according to the contract, was not to be paid for until included in the architect's certificate, and that it had never been so included.

Mr. J. B. Matthews said that the action was to recover the amount claimed under the certificate of the architect for Messrs. Lewis & Allenby, who were re-erecting premises on land belonging to the Crown in Regent-street, London. The defendants were the general contractors for the work, and the plaintiffs were sub-contractors for the heating and hot-water installation, to the amount of 3,320*l.* Various payments were made up to March, 1911, falling short of the sum due by 377*l.*, and on it being asked for the defendants denied liability. They also said the work was done under contract, and that it was a term of the contract that payment should only be made to the plaintiffs on the inclusion of the amount in the architect's certificate, and on payment of the amount. The main point in dispute was whether the defendants had received the money from the building owners. The defendants settled a claim for extras with the building owners for 5,000*l.*, part of which was paid in cash and part in prior lien bonds issued by the building owners on the property. The plaintiffs contended that the terms of settlement were equivalent, as between themselves and the defendants, to payment to the defendants, and that the defendants were estopped from denying that they had received payment. Counsel said that his view was that the plaintiffs were clearly entitled to stand upon the certificate and be paid the amount certified.

Mr. Justice Coleridge: Can the certificate be got over on the ground of mistake?

Mr. Matthews: I think it is impossible to suggest mistake. Continuing, Mr. Matthews said that because the defendants chose to enter into an arrangement with the building owners they had no right to hold over the balance of the plaintiffs' account. The formal certificate for 377*l.* was issued on March 1 by Mr. Verity, the architect, which the plaintiffs forwarded to the proper quarter, with a request for a cheque.

In answer to the Judge, Mr. Hudson, K.C., who appeared for the defendants, said his points were, first, there must be a certificate granted for the money due to the plaintiffs; secondly, the amount of that certificate must be included in the certificate to the defendants; and thirdly, the amount must be paid to his clients.

His Lordship: There was a certificate given by the architect to the plaintiffs before the action was brought, then a certificate was given to the defendants, and a settlement of the defendants' certificate was arrived at in lieu of it being paid?

Mr. Hudson: Yes.

His Lordship: It included the plaintiffs' 377*l.*?

Mr. Hudson: We say it does not. Disputes were going on as to the number of radiators put into the building, and we had given the building owners large credits for a large difference in the numbers supplied.

His Lordship: Can you go behind the certificate on that ground?

Mr. Hudson: Yes; because the architect without any notice to my clients issued the certificate for 377*l.*

His Lordship: He had a right to do that.

Mr. Hudson: I say not, in view of the fact that he must have known that we had already given the building owner large credits in respect of the work and goods which the plaintiffs ought to have supplied and did not supply.

Mr. Justice Coleridge: Do you say that a certificate of an architect is bad unless he gives

notice to the building owner that he is going to issue it?

Mr. Hudson: Yes. I can give authority for that.

Mr. Justice Coleridge: I will bow to it.

Mr. Hudson then quoted the case of Armstrong *v.* The South London Tramways Company, reported in 75 *Law Times*, as authority for his proposition, but his Lordship pointed out that the person certifying in that case was an employee of the company.

Mr. Hudson: The architect is merely the agent of the building owner.

Mr. Justice Coleridge: He is the person who acts between the two parties to the contract.

Mr. Hudson: The old idea that a certificate could only be upset on the ground of fraud or collusion is dead. The architect is now in a quasi-judicial position, and it has become more apparent than ever that once an architect is placed in this quasi-judicial position he must act in the same way as an arbitrator, except that he need not swear witnesses or go through the formalities of judicial proceedings. He must be absolutely independent and impartial. There is a case in which the House of Lords said that if an architect did not act independently, and with sufficient strength of will an award would be upset. With regard to the case here, the architect receives an account for work done. On one side is the amount which the plaintiffs say they have received from us, on the other the contract price. How can the architect know without inquiry whether we have paid the plaintiffs one amount or another?

Mr. Justice Coleridge: That does not matter.

Mr. F. T. Verity, F.R.I.B.A., of 7, Sackville-street, St. James's, was called on behalf of the plaintiffs. He said he was architect to the building owners, and his brother, Mr. E. G. Verity, was the building surveyor. The consulting engineer was Mr. S. W. Robinson, of Hanover-square. The certificates and figures were checked by the Surveyor of Woods and Forests on behalf of the Crown. The last certificate was issued in November, 1910, for 1,595*l*. That included the amount of 377*l*. due to the plaintiffs, who had done the work represented by the certificate for 377*l*. He had no reason to suppose there was any mistake in connexion with either of the certificates.

In cross-examination, he admitted that for the certificate for 1,595*l*. he relied upon the figures supplied by Mr. Ernest Verity.

Mr. Hudson: You merely put your name to whatever your surveyor told you?—Yes.

Mr. Ferdinand, secretary to Messrs. Lewis & Allenby (1909), Ltd., said that the claim for extras was 7,500*l*. The company did not contest the 1,595*l*. certificate, but they did contest the claim for extras. The whole matter was settled for 5,000*l*., and the defendants were paid 1,000*l*. in cash, and took securities for the balance.

Mr. Hudson did not call any evidence.

Mr. Justice Coleridge said that as architect of the new buildings Mr. F. T. Verity put forward a specification which provided for special work for which the plaintiffs obtained the sub-contract. The ordinary course was not followed, because there was no provisional amount inserted in the contract between the defendants and the building owners, which followed a common form authorised by the Institute of Architects. The value of the work sued for was clear, and, *primâ facie*, gave the merits of the case to the plaintiffs. Merits, of course, did not always decide questions on building contracts, because very often the building contractor put his name to documents which no wise man would do, and sometimes the terms were almost penal in their character. The final certificate of March, 1911, given on the conclusion of the work, would, *primâ facie*, include the amount of the plaintiffs' claim, and in the absence of fraud or collusion it would be a certificate which could be sued upon. It was said that the terms of the contract, under which the work was entered into on May 17, 1909, had not been complied with, and that it contained conditions precedent which had not been fulfilled. His Lordship found that the plaintiffs had executed their work in a proper and reasonable manner to the satisfaction of the architect. The defendants suggested that inasmuch as on the final statement of account between the defendants and the building owners a large claim for extras was being made, and that claim, along with the certificate for 1,595*l*., was settled by an arrangement between the parties, the arrangement did not amount to a payment. In his opinion, that argument did not avail the defendants. The defendants could not escape payment of a just debt because they had not got payment of their account in cash. In his view, what was done was equivalent to payment.

Then it was said that the work had not been certified, and it was argued that the certificate for 1,595*l*. did not include the 377*l*. That argument did not avail because an effective certificate was given by the architect. The most that the defendants said was that the architect was a dummy, and certainly when an architect came forward and said: "I signed this document ignorant of its effect; I simply put my name to it," his Lordship said he hardly knew what to say, and he did not know whether that was the usual practice. Mr. F. Verity said he relied on his brother, the quantity surveyor, who knew everything, and in whom he had confidence, and who assured him in each case that the work was in order and had been done. If he (the Judge) had seen any serious ground for believing that the action of the architect had resulted in injustice to the parties he would have seriously turned the matter over in his mind, but when he found that, though the work of the architect on the certificate might have been done by a school-board boy, it had not resulted in any loss or injustice to the parties he would not interfere. Although the certificate for 1,595*l*. would not be a document of any value to the plaintiffs unless the defendants had been paid—apart from the question of extras—they were, at the time of the settlement, actually paid a sum of 1,000*l*. in cash, and the plaintiffs must therefore succeed. The defendants or the building owners had had the benefit of the work the plaintiffs had done, and they had got the architect's certificate. In those circumstances, technical flaws could not be allowed to affect the decision, and he therefore gave judgment for the amount claimed with costs.

LONDON COUNCILS.

Battersea.—Temporary repairs are to be carried out to the carriageway of Clapham Common-road at an estimated cost of 75*l*. No objection is to be raised to the erection of Baptist Schools on the site of Grove Schools, York-road, for Mr. W. Hammond.

Bermondsey.—Plans have been passed for Messrs. Joseph & Smitham, architects, 83, Queen-street, E.C., for the erection of a building in Rotherhithe-street.

Bethnal Green.—Permission has been given to the Shoreditch Borough Council to lay an electricity main from the borough boundary at Virginia-road, along Virginia-road, to and down Austin-street, as far as the Mildmay Mission Hospital, then again along Virginia-road, to and down Brick-lane, as far as the premises of Messrs. Tagg & Son, Ducal-street.

Camberwell.—Application is to be made to the London County Council requesting them to grant a site on the open space at Goose Green upon which the Borough Council might erect a public convenience.

Chelsea.—The roadway of Chelsea-embankment is to be repaved with "Durax" paving and wood at an approximate cost of 8,400*l*.

Croydon.—The County Council have decided to relay the 3-in. water-main in part of Woodside-avenue, and to relay the 1¼-in. diameter water-main in Bancham-avenue with 4-in. pipes, at a total estimated cost of 142*l*. The following plans have been passed:—Mr. S. Scott, Woodside Green, South Norwood, three houses, Woodside Green; Mr. W. F. Riley, London, S.W., fifteen houses, Norton-gardens; Mr. R. Palmer, Sherwood-road, fourteen houses, Brockenhurst-road; Mr. F. Theobald, South Norwood-hill, offices, Portland-road; Mr. C. Bank, Oakfield-road, ten houses, Cedar-road; Messrs. Jones & Keen, 57, Richmond-road, six houses, Raymead-avenue.

Deptford.—Arrangements have been made with Messrs. Mowlem & Co., Ltd., to relay the woodpaving in Evelyn-street, at the places where subsidences have occurred, at an estimated cost of 33*l*., subject to the firm paying one-third of the cost and the authorities concerned the remaining two-thirds. It has been decided at the Conference between the Baths and Washhouses Committee and the Public Libraries Committee to purchase, at a cost of 4,050*l*., the freehold of a site in Evelyn-street on the Evelyn Estate, for the purpose of providing baths, washhouses, and a branch library for the north ward of the Borough.

Finchley.—Plans have been passed as follows:—Mr. W. F. Bertie, ten houses, Fallowcourt-avenue; Mr. H. G. Stacey, sixteen houses, Naylor-road; Messrs. Lavington Brothers, five houses, Fenstanton-avenue. Plans have been lodged by the Hampstead Garden Suburb, Ltd., for the construction of a new road between East Finchley and Regent's Park-road, also by Messrs. Carter, Paterson, & Co., Ltd., for a depôt and manager's house in Dollis Park.

Fyfield.—The West Ham Education Committee have decided, in consequence of the enlargement of the Industrial and Truant School, to provide further accommodation for the staff at an estimated cost of 400*l*., and the contractor at present carrying out the enlargement is to be given an opportunity of executing the extra work at the schedule rates of his contract. It has also been decided to request the Works Sub-Committee to consider the best means of providing additional accommodation at the Channelsea Dining Centre.

Hampstead.—The Borough Engineer has been instructed to carry out the work of paving Oakhill-avenue as a new street, at an estimated cost of 1,620*l*., as soon as practicable.

Heston and Isleworth.—The tender of Messrs. J. Wills & Son, at 63*l*. 10s., has been accepted for alterations and additions at the Isleworth Branch Library. The following plans have been passed:—Messrs. Smee & Houchin, chapel, Staines-road, Hounslow; Mr. Frank J. Fisher, alterations to the Old George Inn, Heston, The Canteen, Tentlow-lane, Heston, and the Old Mail Coach, Hounslow. Plans have been lodged by Mr. H. R. Peake for the new Hounslow Hospital, Staines-road.

Ilford.—It has been decided to repave the High-road with grey royal close-jointed setts. The following plans have been passed:—Mr. W. Lowe, sixteen houses, Twyford-road; Messrs. Rawlins, Culver, & Co., forty houses, Charlbury-gardens, Lynford-gardens, and Burlington-terrace; Messrs. J. Mills & Son, warehouse, York-road; Mr. F. H. Buer, four houses, Bethell-avenue; Mr. H. Davison, twelve houses, Cowley-road; Mr. H. C. Marston, five houses, North-road; Mr. P. E. Brand, additions to chapel, Kingston-road; Mr. F. S. Lello, for Mr. W. K. Aitchison, club premises, High-road, Chadwell Heath. Plans have been lodged by Messrs. Hammond & Miles for the conversion of Nos. 60 and 62, Cranbrook-road into shops.

Islington.—Electricity mains are to be extended at an estimated cost of 90*l*.

Lewisham.—A letter has been received from the London County Council agreeing to lay wood-paving in the tracks and margins of their proposed tramways from Rushey Green to Brockley-rise, and from Park-road to London-road, Forest Hill, as requested by the Borough Council, except on certain steep gradients. Plans and estimates are to be prepared for paving and forming Thomas-lane, Catford. Additional work is to be carried out in connexion with the reconstruction of the sewer in Silverdale, Sydenham, at an estimated cost of 110*l*. A plan and estimate, amounting to 3,201*l*., have been approved for paving and forming Arran-road. The following plans have been passed:—Messrs. S. J. Jerrard & Sons, eight houses, Shell-road and Fossil-road; Messrs. Norfolk & Prior, five houses, Verdant-lane; Mr. J. J. Downes, two shops, Sangley-road.

Leyton.—The question of paving the roadway at the rear of Nos. 527 to 571, High-road, Leytonstone, is to be referred to the Highways and Lighting Committee, with a view to the work being done under the Private Street Works Act, 1892. The Farnley Iron Company are to undertake the work of tiling the condenser pit at the electric light and power station extension with undercut white tiles ¾-in. thick, at 11s. 3d. per yard.

Southgate.—Plans and estimates are to be prepared for making-up Chimes-avenue, Palmer's Green.

Southwark.—It has been decided to carry out the work of constructing a sewer in the new road leading from Alberta-street to Delverton-road, and to make-up the footpaths and pave the road throughout with asphalt on concrete at an estimated cost of 1,104*l*. The tender of Mr. George Newton, 93, Southwark Bridge-road, S.E., has been accepted at 267*l*. for alterations and redecorations to the Blackfriars-road District Library.

Tottenham.—The Engineer has been instructed to prepare plans and estimates for making-up part of Seymour-avenue. The Private Roads Committee report having considered plans and estimates for making-up Rusper-road, part of Tewkesbury-road, part of Bromley-road, and part of Craven Park-road.

West Ham.—Woodside-road is to be levelled, channelled, and paved, etc., under the Private Street Works Act, 1892, and the Surveyor has been instructed, in settling the estimates and provisional apportionments, to provide for the use of Corporation flagging. The following plans have been passed:—Mr. J. O. Cook, alterations and additions to No. 25, Factory-road, Silvertown; Mr. H. J. Smith, additions at Messrs. Coates' Brothers' premises, Canning-road, West Ham; Messrs. Dalton & Son, clothing factory, rear of 94, Chandos-road, Stratford; Messrs. John Knight, Ltd., additions to warehouse and factory, Knights-road, Silvertown; Messrs. T. Young & Sons, conversion of houses into shops, Greengate-street, Plaistow; Mr. W. Sweetingham, alterations to cinematograph hall, Rathbone-street, Canning Town; Messrs. Clemens Brothers, workshop and store at the City Glass Bottle Company's premises,

Ford's Park, Canning Town; Messrs. R. Gay & Co., warehouse, Langthorne Works, Stratford-market; Messrs. H. Tate & Sons, Ltd., additions to electric power house, The Thames Sugar Refinery, Silvertown. The following have been lodged:—Messrs. W. Bradford & Sons, additions and alterations to the "Green Gate" public-house, High-street, and Deacon-street, Stratford; Messrs. Emden, Egan, & Co., cinematograph theatre, 370, High-street, Stratford; Mr. A. Single, rebuilding workshop and warehouse, rear of 29, Hubbard-street, West Ham.

Westminster.—The tender of the Acme Flooring and Paving Company (1904), Ltd., has been accepted at 121*l.* 10s. for paving with combined strip wood pavement the roadway of Durham House-street. The Improvements Committee have decided to alter and widen Poland-street by pulling down No. 18 and laying the site thereof into the highway. Macadam repairs are to be carried out in St. George's-square at an estimated cost of 135*l.* 68,854 creosoted yellow deal paving-blocks are to be purchased from Messrs. W. W. Howard Brothers & Co., Ltd., at a cost of 412*l.* 16s. 6d. Consent has been given to the extension to Little George-street of the sewer in the new street between the Middlesex Guildhall, Broad Sanctuary, and the Surveyors' Institution, the execution of the drainage works at the Institution, the abolition of the existing sewer running under the Institution premises, and the construction of a flushing tank, in accordance with the plan submitted by Mr. Paul Waterhouse on behalf of the Institution, subject to protective conditions and the sum of 160*l.* being deposited with the Council to cover the costs of works on or under the public way, which are to be executed by the Council. A proposal is on foot to continue the widening of Argyll-place to Great Marlborough-street, on the south side, between Kingly-street and Carnaby-street. Plans submitted by Messrs. Bull & Esdaile, Ltd., for additions to No. 58, Princes-gate, have been approved.

Willesden.—The tender of Ryboulds, Ltd., has been accepted for a supply of unclimbable iron fencing at Roundwood Park, at 3s. 6½d. per yard, with iron gates at 38s. each. The tender of Mr. F. G. Brummell has also been accepted, at 1,401*l.*, for the construction of about 1,653 ft. lineal of concrete tube surface water drain at water course, rear of Denzel-road. Electricity mains are to be extended at an estimated cost of 187*l.* Fresh plans and estimates are to be prepared by the Engineer for making-up part of Dog-lane.

Wood Green.—Plans submitted by Mr. C. H. Croxford, Borough Engineer and Surveyor, have been passed for the erection of an elementary school at Lordship-lane and Ellenborough-road, also for alterations and additions at Bounds Green-road School.

Woolwich.—Electricity mains are to be extended at an estimated cost of 65*l.* In connexion with the making-up of a portion of Clay-lane, Plumstead, widening work is to be carried out at an estimated cost of 240*l.* No objection has ben raised to a plan submitted by the London County Council by Mr. J. R. Vining, 89, Chancery-lane, W.C., for additions to a warehouse in Wood-street for Messrs. J. James & Co. Plans have been passed for Mr. J. J. Bassett, Earlshall-road, Eltham, on behalf of Lord Rowallan, for eight houses, Dunvegan-road, Eltham, also for Messrs. Whistler & Worge, 80, High-road, Eltham, on behalf of Mr. S. R. Carr, for additions to "Mottisfont," Court-road, Eltham. Plans have been lodged by Mr. J. J. Bassett, on behalf of Lord Rowallan, for six houses, Dunvegan-gardns, Dunvegan-road, Eltham.

FOREIGN AND COLONIAL.

Australia's Demands for Artisans.

The demand for skilled labour in New South Wales is so great that the Master Builders' Association of Sydney have despatched a trade union representative to England to inform his fellow-workmen in this country of the openings that exist in New South Wales for artisans. The gentleman referred to (Mr. F. J. Murray) informed a representative of the *Morning Post* that the building trades of Sydney are seriously hampered by the lack of men, particularly bricklayers, plasterers, stonemasons, and carpenters and joiners. There are opportunities for men belonging to other trades, but Mr. Murray is only directly concerned with the needs of the Master Builders' Association. "Only recently," he said, "the State Government appointed a Royal Commission to inquire into the state of the labour market in Sydney, and the result of the inquiry was to show that there was an urgent demand for at least 3,000 artisans in the City of Sydney alone. The minimum wage (fixed by law) for the trades with which I am more directly concerned on this mission is as follows:—Bricklayers, 12s. per day, and plasterers, carpenters, and joiners, 11s. This is for an eight-hour day, but in some of the trades—that of the masons, for instance—the hours are even less than that, being forty-four per week. I am not engaging men, because under the laws of the Commonwealth men may not go out under contracts entered into abroad. This is a condition imposed in the interests of the workers lest they should be induced to contract on terms less favourable than those they can command on the spot. But I can do this—I can give an intending emigrant belonging to any of the trades I have enumerated a signed card addressed to the Master Builders' Association which will ensure him an engagement on the terms I have mentioned immediately on arrival. I can also give him this assurance—that constant work awaits him at his trade for more years than he is likely to live."

An advertisement having appeared in the Press to the effect that Mr. Murray would interview bricklayers, plasterers, and joiners at the offices of Mr. John E. Ridgway, 22, Henriotta-street, Covent Garden, London, over 1,500 men and youths arrived outside the offices and clamoured to gain admission. A large number of those who put in an appearance seem to have misread the advertisement. They appear to have been under the impression that the Master Builders' Association of New South Wales were prepared to pay the passage of the applicants willing to go out there. The consequence was that there was much disorder, and a large number of police had to be requisitioned to pacify the crowd. The applicants were then formed into a queue, and they were allowed to enter the offices in batches to interview Mr. Murray. An official at the offices, in an interview, said that Mr. Murray had come over on behalf of the Master Builders' Association of New South Wales to point out the dearth of labour in these particular branches of labour. The Labour Government some time ago appointed a Royal Commission to inquire into the shortage of labour, and before this Commission the master builders gave sworn evidence of the scarcity of artisans which had been growing steadily worse for about eighteen months. The members of the Masters' Association in Sydney alone wanted 172 bricklayers, 57 masons, 135 carpenters and joiners, 19 plasterers, 31 plumbers, and a large number of painters, piledrivers, brickmakers, etc. Altogether Sydney alone could do with at least 3,000 artisans. The passage will only cost about 16*l.* There is some talk of the State Governments granting a reduction in the passage, but that has not come about yet.

Irrigation in New South Wales.

The most important irrigation scheme yet undertaken in Australia, and one of the greatest in the world, is that known as the Burrenjuck (a corruption of the aboriginal word Burrenyak) in New South Wales. It is being carried out under the auspices of the Government, and is so far advanced that the first section of 70,000 acres has been subdivided, and will be thrown open to settlers in the early part of next year, when a big immigration campaign will be inaugurated by the New South Wales Government in Europe and America. One of the contractors for this work, Mr. J. Symons, of the firm of Messrs. Lane & Peters, is now in London in connexion with this and other Australian contracts which his firm has in hand, and when seen by a *Morning Post* representative he explained that the whole scheme when fully completed will involve an expenditure of over 3,000,000*l.*, will irrigate 1,250,000 acres, and will provide settlement areas for 40,000 persons. The irrigation works include the erection of a barrage, which, it is said, will be one of the largest in the world. It will be 232 ft. high, and will form a reservoir of 43 miles long and 200 ft. deep, with a total capacity of 32,000 million cubic ft. of water. There is a river running for 20 miles through the estate, which will be available for irrigation purposes, and this will be supplemented by 50 miles of canals, now in course of construction. The barrage is being constructed of concrete and plumstone, the concrete being made on the spot. Nearly all the work, including excavation, concrete manufacture, and the construction of the barrage, is performed with the aid of an immense electric-power plant, and operations are carried on unceasingly day and night. A large part of the area is in mountainous country, and before the contractors could begin operations at the site of the dam they had to construct a narrow-gauge line for 28 miles through the mountains from the nearest railway line. The minimum rate of wages is 8s. 6d. per day of eight hours for common labour and 9s. 6d. per day for skilled labour, with proportionately higher rates for professional work.

Hotel, Brazil.

H.M. Consul at São Paulo (Mr. D. R. O'Sullivan-Beare) reports that a company has been formed at that place, with a capital of 5,000,000 milreis (about 333,000*l.*), for the purpose of erecting in the city a large hotel with all modern improvements. All material required for the construction and equipment of the hotel may be imported free of duty. The name of the company may be obtained by British manufacturers on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Improvement Works, Calcutta.

The Director-General of Commercial Intelligence of British India has forwarded a copy of the Calcutta Improvement Act, 1911, providing for the improvement and expansion of Calcutta by opening up congested areas, laying out or altering streets, providing open spaces for purposes of ventilation or recreation, demolishing or constructing buildings, etc. A Board of Trustees is to be set up to carry out the provisions of the Act. The copy of the Act may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Building in the Netherlands.

The *Staatscourant* of November 25 notifies that (1) the provincial authorities of Groningen have decided to erect a hospital for mental diseases at Het Boterdiep, in Groningen, at a cost of 250,000 gulden (20,833*l.*); (2) the provincial authorities of Utrecht have decided to erect a pharmaceutical laboratory at Catharijnesingel, at a cost of 198,000 gulden (16,500*l.*).

TRADE CATALOGUES.

We have received from the Carron Company a pamphlet illustrating a new series of gas-fires which they have recently put on the market. The "Abbey," as the new series is termed, comprises eight distinct designs, which, with their different sizes, afford a selection of twenty-one varieties. All parts of the "Abbey" fires are interchangeable, and gas connexion can be made either right or left hand as desired. In most cases a boiling burner can be fitted. The designs show a distinct advance on the wrong-headed elaboration too often met with, and justify the enterprise of the firm in going to the expense of entirely new patterns.

Messrs. Young & Marten, of Caledonian Works, Stratford, London, E., send us a well-produced booklet containing prices and illustrations of the "Hue", adaptable barless fire. Hitherto the adoption of the increasingly popular hearth-fire has in many cases been hindered by the difficulty of adapting the new form to existing grates, entailing, as it does, the temporary removal of the chimneypiece and the scrapping of the stove. The "Hue" fire is manufactured specially to suit the base area of existing grates, and all that is necessary to ensure a proper fit is to supply a paper template of the existing bottom of the gratings. A specially constructed portable closed pan beneath ensures cleanliness in burning. In cases where the existing fire is very shallow the firm recommend the use of their special deflecting back bricks. These can be inserted in most cases by removing the iron backs, without the necessity of taking out the stove or touching the mantelpiece and surroundings. Messrs. Young & Marten also manufacture complete suites, comprising mantel, stove, and hearth.

Messrs. Siemens Brothers, of 39, Upper Thames-street, and Tyssen-street, Dalston, forward us a leaflet for circulation by the trade, containing the latest price list of their well-known "Tantalum" lamps.

The Asbestos Manufacturers Company, Ltd., of Caxton House, Westminster, send us a pamphlet dealing with asbestos corrugated sheathing—a new roofing and sheathing material manufactured by the Asbestos Manufacturing Company, Ltd., of Montreal, Canada, for whom the firm act as sole distributors. It is applied in practically the same manner as corrugated iron, and it is claimed that it is absolutely fire and weather proof, and is unaffected by gas, steam, or other fumes, besides being superior in insulating properties to corrugated iron. Moist conditions of the atmosphere, it is said, by assisting the ultimate setting of its chief component, hydraulic cement, actually improves the material, which, being concrete in sheet form, is of an exceedingly durable nature. Illustrations are given from photographs of its application to warehouses, cold-storage plants, oil storehouses, gas purifier buildings, and other cases where the great desideratum is the maximum of insulation and immunity from fire.

PATENTS.

APPLICATIONS PUBLISHED.*

25,665 of 1910.—Walter Tietze: Door-closing device.

27,528 of 1910.—Robert Thompson and William Affleck Thompson: Reinforcement of columns, ferro-concrete pillars.

30,043 of 1910.—Francis Johnson and Edgar Smailes: Machine for mixing concrete, powders, and the like.

521 of 1911.—Samuel Stelling: Chimney-pots or cowls for preventing down draughts and increasing the up draught.

1,426 of 1911.—Rudolf Hermann McHardy and James McHardy: Casement stay, applicable also to analogous purposes.

1,611 of 1911.—James Chenhalls: Devices for preventing down draught in chimney-pots, chimney-flues, ventilating-shafts, and the like.

4,145 of 1911.—John Shanks: Valve fittings for baths, lavatories, and the like.

5,044 of 1911.—Joseph Joss and Joseph Kline: Combination rule, square, bevel, level, plumb, trammel, scratch, awl, glass-cutter and gauge.

5,252 of 1911.—Frederick Rickards Bennett and Edward Stephen Cashen: Carriage and other sash windows.

5,802 of 1911.—Arthur Edwin Bishop: Dust-bins.

6,264 of 1911.—Henry Hope & Sons, Ltd., and Ralph Walter Hope: Glazed roofs.

10,775 of 1911.—Arthur Ernest Spreadbury: Means or method for the adjustment of portable steps, ladders, trestles, or the like.

11,396 of 1911.—Joseph Leslie Musgrave and Richard Grittall & Co.: Method of installation for heating and cooling buildings.

14,365 of 1911.—Friedrich Schofer: Method of obviating cracking and injurious stresses in combined smoke and ventilating chimneys.

17,591 of 1911.—Eugen Frankel: Flushing apparatus.

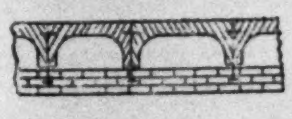
19,104 of 1911.—Alfred Crake Russell: Construction of stair-treads and the like.

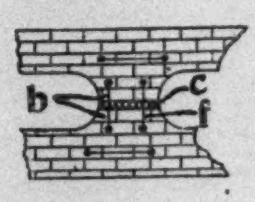
20,086 of 1911.—Adolf Donecker: Process for manufacturing weather-proof coloured artificial gravel for garden paths and the like.

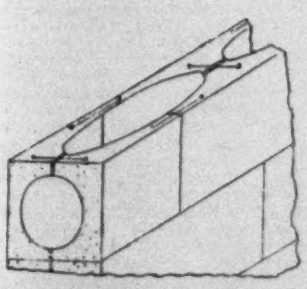
SELECTED PATENTS.

15,796 of 1910.—John Ferguson: Walls.

This relates to hollow damp-proof walls which are formed with ribs *b*, projecting from the inner sides and insulated by damp-proof material *c*. The ribs may be horizontal or







15,796 of 1910.

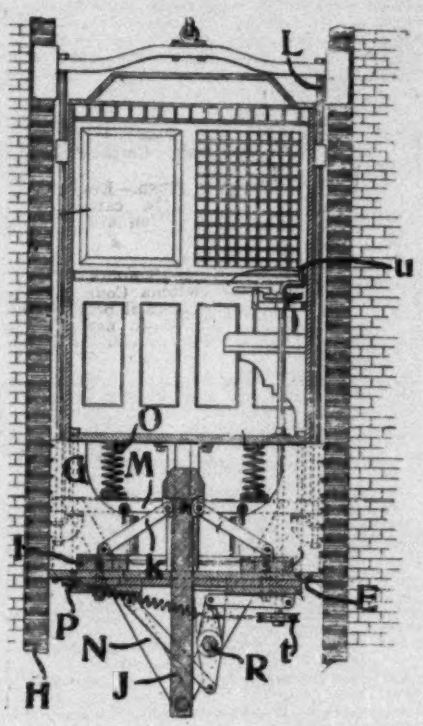
vertical, and the bricks or blocks forming them are strengthened by means of bars, clamps, *f*, or interlocking keys formed on the bricks. A hollow wall constructed of bricks on one side and slabs on the other, and a wall having both horizontal and vertical passages are shown.

16,056 of 1910.—Rudolf Sedlaczek Blome and William Joseph Sinek: Paving.

This relates to means for grooving plastic paving before it sets to represent block paving, and consists in the provision of a die or stamp adjustable in a main frame which extends across the roadway and travels on temporary rails. Rails are laid clear of the road, and thereon is mounted the main frame, which consists of girders and rollers operated by hand gearing. Locking pawls at each end engage notches in the rails. Transverse tracks conforming to the curve of the road are carried on the inner faces of the girders by screws, and support an auxiliary frame. The die-carrier slides in this and carries at the lower end a die-frame, which is pressed downwards by springs. The frame and die are raised and lowered by racks and pinions operated by hand-wheels and controlled by a band-brake.

16,534 of 1910.—Carlos John Brookins: Catch-gear and safety retaining-mechanism for lifts.

This relates to catch-gear and safety retaining-mechanism for lifts, and consists in the provision of a pair of wedge-operated pincer grips carried by the cage, which are controlled by the vertical movement of a skeleton frame-work which surrounds the cage, and are adapted to engage the corrugated guide bars in the event of the hoisting-cable breaking, or by the actuation of a hand-crank in the cage. To the cage floor is rigidly attached a platform E, on which are pivotally mounted the gripping-jaws G. Wedges I sliding on the



16,534 of 1910.

platform E between the inner arms of the jaws G are connected by toggle links *k* to a vertical bar J, which forms part of a skeleton frame L, M, N, surrounding the cage, and supporting it by springs O. In the event of the hoisting-cable breaking, the springs O depress the vertical bar J and thrust the wedges I between the inner arms of the jaw-levers, causing their outer arms to engage the corrugated guide-bars H.

16,835 of 1910.—Glenn Allan: Reinforced concrete.

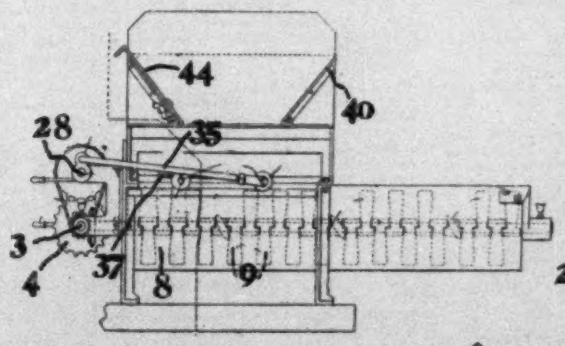
This relates to reinforced concrete, and consists in the provision of flat and angle bars having keyhole slots and notched tie-bars, which engage the straight sides of the slots. The floor and wall connexion is braced, and the corners of the main walls are thickened to form piers.

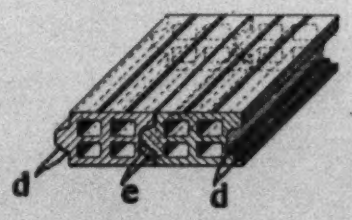
17,084 of 1910.—Heinrich Ditter: Floor and ceiling blocks.

This relates to interlocking blocks for floors and ceilings wherein the blocks are constructed with stepped grooves *d*, which on assembling the blocks form circular channels beneath the interlocking ribs and recesses for the reception of supporting iron rods *e*.

17,524 of 1910.—Henry Pocock: Apparatus for mixing concrete.

This relates to machines for mixing sand or gravel with concrete, and consists in providing an open-bottom divided hopper with a carriage reciprocating beneath the open bottom, the hopper having two adjustable front plates for regulating the passage of material, which is delivered from the carriage to the mixing-apparatus beneath. The main shaft 3, mounted on the front of the machine, is driven by hand, or by a pulley fixed thereon, or through a chain-wheel 4 mounted loose thereon and connected to the shaft by a spring clutch inside an angular rim 11 connected to the wheel. The clutch is connected to a hub fixed on the shaft 3, and has an opening at its upper end into which passes the squared end of an arm 20, which is connected through a lever to a lever carrying a roller 24, adapted to be engaged by a conical collar, which revolves with and reciprocates on the shaft 3, being operated by a lever to lift the roller 24, and turn the arm 20 to open the spring to clutch the rim 11. The shaft 3 drives, through bevel-gearing, a shaft 8, which carries inclined mixing-blades 9, and a countershaft 28, through chain gearing and a clutch, one part being loose and the other part pinned on the shaft, and the parts being engaged by a lever 33, an arm of which has a catch to hold the clutch parts together. The ends of the shaft 28 carry cranks connected to rods 35 fixed to the back axles of the wheels of a reciprocating carriage 37 running on tracks below the mouth of the divided hopper 40. The front openings of the hopper above the carriage are regulated by adjustable plates 44, 45, the plate 46 in the cement hopper being provided with a curved end *f*. In the side of the cement hopper is mounted a shaft 51 operated by connexion to the front axle of the carriage 37, to oscillate an agitator 53, the part *t* of which moves forward and downward with the forward movement of the carriage to force cement through the opening 43. On the return movement of the carriage the cement falls into the mixer and the forward and downward movement of the part *t* carries cement down to fill the opening 43 for the next forward stroke.





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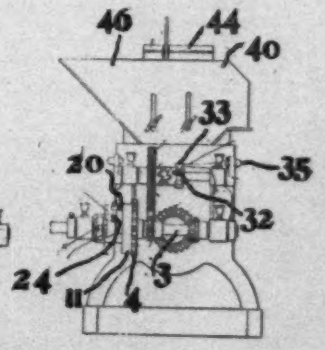

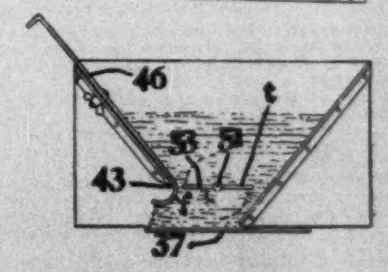

17,524 of 1910.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. **Those with an asterisk (*) are advertised in this number:** Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointment, xvi.; Auction Sales, xxii.

Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisement; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

Competitions.

DECEMBER 15.—**Sofia.**—NEW MUNICIPAL BUILDING.—See Competition News, page 508, November 3.

DECEMBER 21.—R.I.B.A. Prizes and Studentships. Work to be sent to 9, Conduit-street, before 4 p.m.

DECEMBER 29. — **Glasgow.** — DESIGN FOR A BRIDGE.—Designs are invited (Alexander Thomson Travelling Studentship) for a bridge. Premiums of 60*l.* and 20*l.* are offered. See advertisement in issue of December 24, 1910, for further particulars.

DECEMBER 30. — **Armadale.** — Public hall and offices, to cost 2,500*l.* Premiums of 15*l.* and 10*l.* Open only to architects who were represented on the site on October 12.

DECEMBER 30.—**Welsh Eisteddfod, 1912.**—DESIGNS FOR WORKMEN'S DWELLINGS.—Prize, 50*l.* Particulars from Welsh Housing Association, 9, Temple-chambers, E.C.

JANUARY 1, 1912. — **Rochdale Infirmary.**—EXTENSIONS.—Limited to Rochdale architects. Assessor, Mr. Alex. Graham, F.R.I.B.A.

JANUARY 6, 1912.—**Bolton.**—Miners' Federation Hall and Offices. Limited to architects within twenty-five miles of Bolton. Premiums, 50*l.* and 25*l.* Assessor, Mr. Jonathan Simpson, F.R.I.B.A. Particulars from Messrs. Fielding & Fernihough, 7, Fold-street, Bolton.

JANUARY 6, 1912.—**Stafford.**—PUBLIC LIBRARY.—The Stafford Corporation invite designs for a Public Library. Mr. Henry T. Hare, F.R.I.B.A., assessor. Second and third premiums of twenty and forty guineas. Deposit, 1*l.* Particulars from Mr. W. Plant, A.M.Inst.C.E.

* JANUARY 8.—**Banbury.**—WORKMEN'S DWELLINGS.—The Banbury T.C. invite designs for workmen's dwellings. See advertisement in this issue for further particulars.

JANUARY 9, 1912. — **Spennymoor.** — PUBLIC HALL, ETC.—The Spennymoor U.D.C. invite competitive plans and designs for a public hall, market, and offices, etc. Three premiums are offered. See advertisement in issue of December 1 for further particulars.

JANUARY 29, 1912.—**Montevideo.**—Government palace (premiums, 2,125*l.* and 850*l.*) and town improvement scheme (premiums, 1,060*l.*, 640*l.*, and 425*l.*). Conditions may be seen at the Board of Trade, 73, Basinghall-street, E.C.

JANUARY 31, 1912. — **Australia.** — DESIGNS FOR FEDERAL CAPITAL CITY.—The Government of the Commonwealth of Australia invite competitive designs for the laying out of this Federal capital city. See advertisement in issue of September 1 for further particulars. See also page 508, November 3.

FEBRUARY 3, 1912.—**Bolton.**—NURSES' HOME AT THE INFIRMARY.—Premiums of 30*l.*, 20*l.*, and 10*l.* Assessor, Mr. John B. Gass, F.R.I.B.A.

FEBRUARY 17, 1912. — **London, E.C.** — NEW OFFICES.—The Port of London Authority invite preliminary sketch designs for new head offices in Trinity-square, and for laying out remainder of land as a building site. See advertisement in issue of November 24 for further particulars.

MAY 1, 1912.—Society of Architects' Travelling Studentship. Design for a Town Hall. 25*l.* and medal.

JULY 1, 1912.—**Dusseldorf.**—A plan for the extension of the City of Dusseldorf. Premiums of 1,000*l.* to 375*l.* Conditions on application to the Chief Burgomaster, Dusseldorf. A translation appeared on page 365, September 29.

NO DATE.—**Jordanhill, Glasgow.**—PROPOSED TRAINING COLLEGE.—Limited to six firms, named in Competition News, December 1, page 635.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

DECEMBER 8.—**Bridgwater.** — ADDITIONS.—For alterations and additions to the Isolation Hospital at the docks. Borough Surveyor, Mr. F. Parr, A.M.Inst.C.E., Municipal-buildings, High-street, Bridgwater.

DECEMBER 8.—**Laverocklock, etc.**—HOUSE, ETC.—Erection of new farmhouse at Cotts, and new farm steading at Laverocklock. Plans and specifications with Mr. J. Wittet, architect, Elgin.

DECEMBER 9.—**Elgin.**—ADDITIONS.—For additions to Elgin Academy buildings. Plans and specifications with Mr. J. Wittet, architect.

DECEMBER 9.—**Great Harwood.**—COTTAGES.—Erection of twenty-seven cottages near Gladstone-street. Plans and specifications seen, and form of tender from Mr. A. H. Dunkin, Surveyor to the Council, Town Hall, Great Harwood.

DECEMBER 11.—**Leeds.**—CHAMBER.—Construction of an underground transformer chamber at North and South-street. Specification and drawing seen, and form of tender from Mr. H. Dickinson, Manager, 1, Whitehall-road, Leeds.

DECEMBER 11.—**Morecambe.**—RESIDENCE.—Erection of a villa residence in Bare-lane. Plans, specifications, etc., at "Ye Planry," 23, Queen-street. Mr. Albert Gorton, architect.

DECEMBER 11.—**Ossett.**—SHED.—Erection of a shed in Wakefield-road. Plans from Messrs. Holtom & Fox, architects, Corporation-street, Dewsbury.

DECEMBER 11.—**Rugby.**—SHED.—Erection of a corrugated-iron shed at the cattle market. Drawings seen, and specification and quantities from Mr. D. G. Macdonald, A.M.Inst.C.E., surveyor.

DECEMBER 11.—**Sheffield.**—SCHOOLS.—For the following works:—Philadelphia Council School, alterations; Tinsley Park Council School, alterations; Carbrook Council School, new playshed, etc. Drawings seen, and quantities and forms of tender from City Architect, Town Hall, Sheffield.

DECEMBER 11.—**Southamptcn.**—SCHOOL.—Erection of a handicraft and cookery centre, and enlargement of Ascupart School. Plans, specification, and conditions seen, and quantities and forms of tender at the Borough Engineer's Office, Municipal Offices, Southampton. Deposit of 3*l.* 3s.

DECEMBER 11.—**South Norwood.**—ALTERATIONS.—For structural alterations at Branch School, Cumberlow, South Norwood. Plan at the District School at Anerley. Deposit of 1*l.* Mr. H. J. Chaldecott, Clerk to the Managers.

DECEMBER 12.—**Abercrave.**—STORES.—Erection of stores for the Abercrave Co-operative Society. Specification, on deposit of 5s., from Manager, Co-operative Society, Abercrave.

DECEMBER 12.—**Bridlington.**—SCHOOL.—Erection of new buildings in extension of the Grammar School. Drawings and specifications seen, and quantities, on deposit of 1*l.*, from the architect, Mr. John Bilson, 23, Parliament-street, Hull.

DECEMBER 12.—**Dowlais.**—INN.—Rebuilding of the Victoria Inn, for the Pontycapel Brewery Company. Plans and specification seen, and quantities, on deposit of 1*l.* 1s., from Messrs. Johnson & Richards, architects, Merthyr Tydfil.

DECEMBER 12.—**Dowlais.**—THEATRE.—Erection of an electric theatre for the Victoria Cinema Company Ltd. Plans and specification seen, and quantities, on deposit of 2*l.* 2s., from Messrs. Johnson & Richards, architects, Merthyr Tydfil.

DECEMBER 12.—**Hendon.**—SCHOOL.—For erection of a public elementary school. Mr. James Anderson, Council Offices, Hendon, N.W.

DECEMBER 13.—**Bury.**—SHED.—The Lancashire and Yorkshire Railway invite tenders for the erection of a cotton-shed at Knowsley-street Goods Yard. Plans seen, and quantities and specification at the Engineer's Office, Hunt's Bank, Manchester.

DECEMBER 13. — **Keighley.** — CONVENIENCES.—Erection of conveniences in West-lane. The Borough Engineer, Keighley.

DECEMBER 13. — **Saltash.**—ALTERATIONS.—For sanitary alterations at the police-station. Mr. Albert E. Brookes, County Surveyor, Truro.

DECEMBER 13.—**Swinton.**—SCREEN.—For building a screen to the boys' playshed at schools. Drawings seen, and quantities from Mr. A. J. Murgatroyd, architect, 23, Strutt-street, Manchester. Deposit of 10s. 6d.

DECEMBER 14.—**London.**—POST-OFFICE.—Erection of Barking new post-office. Drawings, specification, and form of contract at Barking Post-office. Quantities and forms of tender, on deposit of 1*l.* 1s., from the Secretary, H.M. Office of Works, etc., Storey's-gate, London, S.W.

DECEMBER 14. — **Teignmouth.**—POST-OFFICE.—Extension of Teignmouth Post-office. Drawings, specification, and form of contract at Teignmouth Post-office. Quantities and forms of tender, on deposit of 1*l.* 1s., from Secretary, H.M. Office of Works, etc., Storey's-gate, London, S.W.

* DECEMBER 14. — **Waltham Cross.**—SCHOOL.—The Hertfordshire C.C. Education Committee invite tenders for new school. See advertisement in this issue for further particulars.

* DECEMBER 15.—**Grays.**—SCHOOL.—The Essex Education Committee (Orsett District Sub-Committee) invite tenders for special school. See advertisement in this issue for further particulars.

DECEMBER 15.—**Kendal.**—WALLS.—For removal of earthwork and building of retaining walls in connexion with the widening of Queen's-road. Plans, specification, and general conditions of contract seen, and quantities from Mr. F. W. Oxberry, Borough Surveyor, Town Hall, Kendal.

* DECEMBER 15. — **Tilbury.** — MANUAL, ETC., CENTRE.—The Essex Education Committee (Orsett District Sub-Committee) invite tenders for manual, cookery, and housewifery centre. See advertisement in this issue for further particulars.

DECEMBER 16. — **Beminster.** — ADDITIONS.—Erection of additions to the master's house at the Grammar School. Plans and specifications with Mr. Henry H. Hounsell, architect, Bridport.

DECEMBER 16.—**Bexhill.**—SEA WALL, ETC.—Construction of a sea wall, slipway, promenade, and other works. Plans seen, and specification, quantities, and form of tender from Mr. Geo. Ball, Assoc.M.Inst.C.E., Borough Surveyor, Town Hall, on deposit of 5*l.*

DECEMBER 16.—**Brough.**—COURTHOUSE, ETC.—Erection of a police-station and courthouse. Plans and specification seen, and quantities and forms of tender, on deposit of 1*l.* 1s., from Mr. J. Watson, quantity surveyor, Cogan-chambers, Hull.

DECEMBER 16. — **Ripperholme.**—ADDITIONS.—For additions to the Wesleyan school. Plans and specifications seen, and quantities from Mr. Joseph F. Walsh, F.S.I., architect and surveyor, 10, Harrison-road, Halifax.

DECEMBER 16. — **Loughrea.** — PUMP-HOUSE.—Erection of a new pump-house, supplying and fixing of pumps, gas-engines, suction plant, etc. Plans and specification by Mr. F. Bergin, B.E., 36, Westmoreland-street, Dublin. Deposit of 1*l.*

DECEMBER 16.—**Newport, Mon.**—COTTAGE, ETC.—For the erection of a cottage and homestead on Holding Henllys No. 1. Plans and specification with Mr. C. Reginald Harding, County Land Agent, County Council Offices, Newport, Mon.

DECEMBER 16.—**Shoreham-by-Sea.**—SCHOOLS.—Erection of schools. Plans and specification seen, and quantities from the architect and Surveyor, Mr. A. W. Nye, M.S.A., Town Hall, Shoreham-by-Sea, Sussex. Deposit of 1*l.* 1s.

DECEMBER 16. — **Tattenhall.**—SCHOOL.—Erection of a new Council school. Plans and specifications from Mr. H. Beswick, F.R.I.B.A., County Architect, Newgate-street, Chester. Quantities on deposit of 1*l.*

DECEMBER 18.—**Earlsheaton.**—HOUSES.—Erection of four houses at Bank Top. Plans and quantities from Messrs. John Barton & Son, architects and surveyors, Halifax-road, Dewsbury.

DECEMBER 18. — **Edinburgh.** — EXTENSIONS.—Erection of the fire-resisting floors, etc., in connexion with the alterations and extension of the Central Telephone Exchange, Rose-street. Drawings, specifications, and conditions of contract at H.M. Office of Works, 3, Parliament-square, Edinburgh; or at H.M. Office of Works, G.P.O., Glasgow. Quantities and forms of tender from H.M. Office of Works, 3, Parliament-square, Edinburgh. Deposit of 1*l.*

DECEMBER 18.—**Old Trafford.**—EXTENSIONS.—For the extension of the Technical Institute, Stretford-road. Plans seen, and quantities from the architects, Messrs. John Bowden & Co., 14, Ridgefield, Manchester. Deposit of 3*l.* 3s.

DECEMBER 18.—**Sheerness.**—NEW QUARTERS.—Erection of 10b Married Soldiers' Quarters, Sheerness Garrison at New Barracks, in the Eastern Command. Plans, specification, and conditions of contract at the Barrack Construction Office, Sheerness Garrison; and at the office of the Director of Barrack Construction, 80, Pall Mall, London, S.W. Quantities from the Director of Barrack Construction. Deposit of 10s.

DECEMBER 18. — **Stevenage.** — FIRE-STATION.—Erection of a fire-station. Plans, specification, and form of contract, on deposit of 10s. 6d., from Mr. Wm. Onslow Times, Clerk to the Council, Council Offices, Stevenage, Herts.

DECEMBER 19.—**Martin's Hill.**—CONVENIENCE.—For the erection of a women's convenience on the Martin's Hill Recreation ground. Specification and details at the Borough Engineer's Office. Deposit of 1*l.*

DECEMBER 20. — **Barrow-in-Furness.** — Construction of new conveniences in Hindpool-road and Salthouse-road, and extension of existing convenience in Church-street. Plans seen, and quantities from Borough Engineer and Surveyor, Town Hall.

DECEMBER 20.—**Oldham.**—SHOPS.—Erection of a number of lock-up shops adjoining the Victoria Market Hall. Plans and specifications seen, and quantities and forms of tender at the Borough Surveyor's Office.

BUILDING—continued.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

DECEMBER 20.—**Tyldesley.**—SCHOOL.—Erection of an elementary school. Plans seen, and quantities from the County Architect, Mr. Henry Littler, 16, Ribblesdale-place, Preston. Deposit of 2*l*.

* DECEMBER 22.—**Birmingham.**—SUBWAY.—The Commissioners of H.M. Works and Public Buildings invite tenders for construction of a subway at new Parcel Office. See advertisement in this issue for further particulars.

DECEMBER 22.—**Kendal.**—INSTITUTE.—For erection of Allen Technical Institute and Museum. Plans and specifications seen, and quantities from Mr. S. Shaw F.R.I.B.A., architect, Kendal.

DECEMBER 23.—**London.**—HOSPITAL.—For constructing a new hospital and other work at Staines-road, Hounslow. Drawings, specifications, and form of contract seen, and quantities and form of tender from Mr. H. R. Peake, 213, High-street, Hounslow, on deposit of 1*l*. 1s.

DECEMBER 23.—**Macclesfield.**—HOME.—Erection at the Workhouse of a nurses' home, mortuary, and an extension of the Infirmary. Drawings and specifications seen, and quantities from Messrs. Whittaker & Bradburn, 19, King Edward-street, Macclesfield, on deposit of 1*l*. 1s.

DECEMBER 30.—**Aston.**—EXTENSION.—Erection of an extension to the electricity-station in Chester-street. Forms of tender and quantities from the quantity surveyor, Mr. Christopher Silk, 33, Newhall-street, Birmingham. Deposit of 2*l*. 2s. Drawings with the architects, Messrs. Arthur Harrison & Cox, Council-chambers, 109, Colmore-row, Birmingham.

* DECEMBER 30.—**Birmingham.**—ELECTRIC STATION.—The Electric Supply Committee invite tenders for erection of an extension of the station in Chester-street, Aston. See advertisement in this issue for further particulars.

DECEMBER 30.—**Elbury, Devon.**—REBUILDING.—For rebuilding Elbury farm buildings. Plans from Messrs. E. H. Harbottle & Son, architects, County-chambers, Exeter.

JANUARY 1, 1912.—**Belturbet.**—HOUSE.—For alterations and additions to dwelling-house. Plans and specification from Mr. P. J. Brady, C.E., architect, Broomfield House, Ballyhaise.

* JANUARY 5, 1912.—**Edenbridge.**—SPECIAL SUBJECTS BUILDING.—The Kent Education Committee invite tenders for special subjects building. See advertisement in this issue for further particulars.

JANUARY 5, 1912.—**Milnrow.**—SCHOOL.—Erection of an elementary school at Milnrow, near Rochdale. Plans seen, and quantities from Mr. Henry Littler, 16, Ribblesdale-place, Preston. Deposit of 2*l*.

* JANUARY 5, 1912.—**Welling, Kent.**—SCHOOL.—The Kent Education Committee invite tenders for new Council school at (Bexley) Welling. See advertisement in this issue for further particulars.

* JANUARY 8, 1912.—**Loose, Kent.**—SCHOOL.—The Kent Education Committee invite tenders for new Council school. See advertisement in this issue for further particulars.

No DATE.—**Audenshaw.**—LEATHER WORKS.—Erection of new leather-dressing works. Messrs. Lindley & Gibson, architects and surveyors, Ashton-under-Lyne.

No DATE.—**Mirfield.**—PAVILION, ETC.—Erection of a small pavilion and the laying-out of a bowling green at Spring Head, for the Nab Working Men's Club and Institute. Mr. J. W. Burrows, architect, Royd-terrace, Mirfield, near Leeds.

No DATE.—**Silksworth.**—PICTURE HALL.—For erection of a new picture hall at Silksworth. Names at once to Mr. J. Newton Fatkin, architect, 1, St. Nicholas-buildings, Newcastle.

No DATE.—**South Bank, Yorks.**—SCHOOL.—Erection of a school in Victoria-street. Messrs. J. M. Bottomley & Wellburn, architects, 28, Albert-road, Middlesbrough.

No DATE.—**Southend.**—ADDITIONS, ETC.—Erection of two additional wards, alterations, and additions to nurses' quarters at the Southend-on-Sea Victoria Hospital. Architects, Messrs. Burles & Harris, Clarence-chambers, Southend.

ENGINEERING, IRON, AND STEEL.

DECEMBER 11.—**Lancaster.**—BRIDGE.—For the steel girders, sinking caissons, etc., in connexion with a new bridge across the River Lune. Specifications, quantities, and all particulars from Mr. Arthur G. Bradshaw, Borough Surveyor, Town Hall, Lancaster.

DECEMBER 14.—**Barrow-in-Furness.**—LIGHTING.—For installation of electric light at the central fire-station, Abbey-road. Plans at the Electricity Works, Buccleuch-street, and specifications from the Borough Electrical Engineer. Deposit of 1*l*. 1s.

DECEMBER 15.—**Ennis.**—GASHOLDER.—For supplying and fixing at the gasworks a new gasholder in steel tank. Plans seen, and specification from the Engineer, Mr. H. Hawkins, C.E., M.S.C.I., Moyola Villa, Lansdowne, Limerick.

DECEMBER 15.—**Killala.**—BRIDGE.—For reconstruction of the Glen River Bridge. Specification with the County Surveyor, Ballina. Form of tender from Mr. J. T. Kelly, Secretary, County Council, Courthouse, Castlebar. Deposit of 5*l*.

DECEMBER 18.—**Damerham.**—BRIDGE.—For reconstruction of Compass Bridge. Plan and specification, and general conditions from Mr. W. J. Taylor, County Surveyor, The Castle, Winchester. Deposit of 2*l*. 2s.

DECEMBER 21.—**Earls Colne.**—BOREHOLE.—For sinking a borehole for water supply. Specification and schedule from the engineers, Messrs. Sands & Walker, Milton-chambers, Nottingham.

DECEMBER 22.—**London.**—EXTENSION.—Extension of the electricity works, East-street, Barking. Plans, specification, and conditions of contract seen, and quantities from Mr. C. F. Dawson, Surveyor to the Council, Public Offices, Barking, on deposit of 2*l*. 2s.

JANUARY 10, 1912.—**Douglas, Isle of Man.**—PIER.—Widening of the Victoria Pier at Douglas. Plans, specification, quantities, and form of tender from Mr. W. H. Blaker, Engineer to the Harbour Board, Coronation-chambers, Douglas, on deposit of 2*l*. 2s.

FURNITURE, PAINTING, MATERIALS, etc.

DECEMBER 11.—**Portsmouth.**—PAINTING.—For painting the outside of the Council schools during the Christmas vacation. Specification with the Surveyor, Mr. A. H. Bone, Cambridge Junction, Portsmouth.

DECEMBER 12.—**Lewisham.**—PLASTERING.—For replastering the ceilings at the Central Library, High-street, and at the Forest Hill Library, Dartmouth-road. Form of contract at the Town Hall, Catford (Surveyor's department). Specification on deposit of 5s. Mr. Edward H. Oxenham, Clerk to the Committee, Town Hall, Catford, S.E.

DECEMBER 12.—**Sunderland.**—CLEANING, ETC.—For the inside cleaning, etc., of the schools. Specifications seen, and form of tender at the Borough Engineer's Office, Town Hall.

* DECEMBER 16.—**London, W.**—SHINGLE.—The Paddington B.C. invite tenders for supply of fine crushed Thames or other shingle for alternative periods of one, two, or three years, from January 25 next. See advertisement in this issue for further particulars.

DECEMBER 16.—**Totnes.**—FENCES, ETC.—For erecting fences, and forming footpaths in connexion with the cemetery extension. Plans and specifications with the Borough Surveyor, Mr. W. F. Tollit.

* DECEMBER 18.—**East Ham.**—DEMOLITION.—The East Ham Education Committee invite tenders for the demolition of the old vicarage building, and for removal of the old material. See advertisement in this issue for further particulars.

DECEMBER 20.—**Canterbury.**—PAINTING, ETC.—For distempering, painting, etc., at the city police-station. Mr. A. C. Turley, A.M.Inst.C.E., City Surveyor, Guildhall-street, Canterbury.

* JANUARY 2.—**Wandsworth.**—MATERIALS AND WORKS.—The Wandsworth B.C. invite tenders for execution of works and the supply of materials for a period of one, two or three years, at the option of the Council. See advertisement in this issue for further particulars.

No DATE.—**Kendal.**—PAINTING.—For painting and decorating the interior of 53, High-gate. Mr. John Stalker, M.S.A., architect, Kendal.

ROADS, SANITARY AND WATER WORKS.

DECEMBER 9.—**Flixton.**—FLAGGING.—For laying of concrete flags in Flixton-road. Plans seen, and particulars from Mr A. H. Mountain, A.M.Inst.C.E., Union Offices, Patricroft, near Manchester.

DECEMBER 9.—**Looe.**—SEWERS.—For providing and laying sewers in Middle Market and Buller streets, East Looe. Plans and specifications from the Surveyor, Looe.

DECEMBER 11.—**Leeds.**—ROADS.—For paving and flagging private streets. Drawings at the City Engineer's office, Municipal-buildings. Forms of tender and quantities from the Highways Office, 155, Kirkstall-road, Leeds.

DECEMBER 12.—**St. Denys.**—DRAINS.—For laying storm-water drains. Plans, specification, and conditions seen, and quantities and form of tender at the Borough Engineer's Office, Municipal Offices, Southampton. Deposit of 1*l*. 1s.

DECEMBER 13.—**Isle of Wight.**—CHIPPINGS.—For the supply of 75 tons of granite chippings (¾-in. gauge). Tender forms from Mr. H. Eldridge Stratton, Clerk to the Council, R.D.C. Offices, 30, Pyle-street, Newport, I.W.

DECEMBER 14.—**London.**—ROADS.—For the kerbing, channelling, paving, making-up, etc., of Holmbury-view and Hawkwood Mount, Hackney. Conditions of contract and specifications and plans and quantities, and form of tender from Mr. Norman Scorgie, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Hackney, N.E. Deposit of 1*l*. 1s.

DECEMBER 16.—**Colchester.**—ROAD.—Construction of a new road and other works near the recreation ground. Plans and sections seen, specifications, quantities, and form of tender, on deposit of 1*l*. 1s., from Messrs. Ernest S. Beard & Daniell, surveyors, Head Gate, Colchester.

DECEMBER 18.—**Dover.**—MATERIALS.—For supply of granite, chippings, and quartzite. Forms of tender and specification from Mr. R. E. Knocker, Town Clerk, Town Clerk's Office, Dover.

DECEMBER 18.—**Guildford.**—ROAD.—For extension of Cline-road. Plans and specification seen, and form of tender from Mr. C. G. Mason, A.M.Inst.C.E., the Borough Surveyor, at Tunsgate.

DECEMBER 20.—**Isle of Wight.**—DRAINAGE.—For laying of water mains and services on the Gatcombe Estate. Plans, specifications, and conditions seen, and forms of tender and quantities, on deposit of 1*l*. 1s., from Messrs. H. W. Daws and Co., High-street, Shanklin.

DECEMBER 21.—**Croydon.**—STREETS.—For the making-up of the private streets. Plans and specifications by the Council's Surveyor, Mr. R. M. Chart, F.S.I., Katharine-street, Croydon. Deposit of 2*l*.

DECEMBER 21.—**Halam.**—SEWAGE.—For laying of pipe sewers, manholes, and the construction of small tanks and filters. Plans at the office of the engineers, Messrs. Sands & Walker, Milton-chambers, Nottingham. Specification and quantities on deposit of 2*l*. 2s.

DECEMBER 21.—**Southwell.**—SEWERS.—For laying stoneware pipe sewers, manholes, and construction of small tanks and filters. Plans from engineers, Messrs. Sands & Walker, Milton-chambers, Nottingham, and quantities on deposit of 2*l*. 2s.

DECEMBER 21.—**Stockport.**—SEWERAGE.—For excavating and sewering a portion of Edgeley Fold. Plan, specification, and conditions of contract seen, and quantities and form of tender from Mr. John Atkinson, A.M.Inst.C.E., Borough Surveyor, Town Hall, Stockport.

DECEMBER 28.—**Newmains.**—DRAINAGE.—For the construction of a sewerage system and sewage purification works. Plans seen, and specification from Mr. W. L. Douglass, M.Inst.C.E., District Engineer, District Offices, Hamilton. Deposit of 1*l*.

No DATE.—**Craghead.**—STREETS.—For excavation, concrete, and street formation works at Craghead. Mr. J. W. Rounthwaite, A.R.I.B.A., architect, 13, Mosley-street, Newcastle-upon-Tyne.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*ARCHITECT	Mile End Old Town Guardns.	200*l*. per annum	Dec. 18

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*FREEHOLD SITES, TOTTENHAM COURT-ROAD AND KING'S CROSS—At the Mart	Rutley, Son, & Vine	Dec. 12
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	Dec. 13
*SEASONED TIMBER—At Woodman-yard, Westow hill, Upper Norwood	Money & Johnston	Dec. 15
*FREEHOLD SITE, WESTMINSTER—At the Mart	Giddy & Giddy	Dec. 15

METROPOLITAN WATER BOARD.

At the monthly meeting of this Board, held last Friday, the following amongst other matters were dealt with:—

Supply to Hampstead Garden Suburb, etc.—It was decided to expend 41,500*l.* in the erection of pumping-stations at Fortis Green and Cricklewood, and in the laying of mains to improve the supply to the Kidderpore Reservoir Zone, in which are situated the Hampstead Garden suburb and the district of Hendon and Golder's Green. It was also agreed to use Diesel oil-engines in the pumping-stations.

Island Barn Reservoir.—It was reported that Messrs. R. McAlpine & Sons had completed their contract for the construction of the Island Barn reservoir. The tender was for 152,727*l.* 7s. 9d.

Quantity Surveyors.—Messrs. Northcroft, Neighbour, & Nicholson were appointed to take all the quantities for the construction of the pumping-station, gas-producer house, and two cottages at the Chingford Reservoir Works.

Works.—Amongst the estimates for new works passed were the following:—3,200*l.* for the laying of a main for Old Ford Pumping-station to High-street, Stratford; 1,050*l.* for laying mains over Ladbroke-grove road bridge; and 871*l.* for the renewal of mains in the New River district.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

November 21.—By W. M. STICKNEY & SON.

Nunkeeling, Yorks.—Pasturefield House Farm, 278 acres, f. £4,250

November 22.—By G. TROLLOPE & SONS.

Welford, Northants.—Part of Sulby Hall Estate, 409 acres, f. 14,145

November 23.—By KNIGHT, FRANK, & RUTLEY.

Grappenhall, Cheshire.—Canal Bank Farm, 67 a. 3 r. 22 p., f. 3,190
Swiss Cottage and 3 a. 0 r. 35 p., f. 385

November 24.—By T. W. GAZE & SON.

Tibenham, Norfolk.—Dysons Farm, 75 a. 2 r. 30 p., f. and c. 1,050
Three cottage tenements and 4 acres, f. and c. 308
Winfarthing, Norfolk.—Two shops and cottages, c. 175

By KEMSLEY.

Tattershall, Lincs.—Part of Tattershall Estate, 1,270 acres, f. 22,085

November 25.—By THORNBOROW & Co.

Hesket, Cumberland.—Nunclose Farm, 22 acres, f. and c. 775

November 27.—By ELLIOTT, SON, & BOTTON.

Battersea.—Mallinson-rd., Leathwaite-rd., Bennerley-rd, Salcott-rd., etc., f.g. rents 777*l.*, reversion in 70 yrs. 17,995

By BLAKE, SON, & WILLIAMS.

Croydon.—Leslie Park-rd., f.g.r. 9*l.*, reversion in 30 yrs. 215
4, Leslie Park-rd., f., w.r. 16*l.* 18s. 150
Norwood.—2, Portland-rd. (s.), f., y.r. 45*l.* 650
Portland-rd., f.g.r. 19*l.*, reversion in 55 yrs. 450

By GARRETT, WHITE, & POLAND.

Leyton.—339, Church-rd., f., p. 210

November 28.—By ELLIOTT, SON, & BOTTON.

Ealing.—Castle Bar-hill, Fennymere, and 1¼ acres, f., p. 3,000
Streatham.—115 to 127 (odd), Gleneagle-road, u.t. 83¾ yrs., g.r. 56*l.*, y. and e.r. 252*l.* 1,410

By HOLCOMBE, BETTS, & WEST.

Regent-st.—58, Margaret-st., beneficial lease for 12 yrs. at 215*l.* per annum 1,000
Sydenham.—58, Longton-gr., u.t. 40 yrs., g.r. 20*l.*, e.r. 90*l.* 450
Brixton.—Wiltshire-rd., f.g.r. 26*l.*, u.t. 50 yrs., g.r. 1*l.* 415
St. John's Wood.—70, Hamilton-ter., u.t. 24 yrs., g.r. 10*l.*, y.r. 90*l.* 780
Maida Vale.—7, Carlton-vale, u.t. 36¾ yrs., g.r. 7*l.* 10s., y.r. 70*l.* 400
29, 30, and 31, Aberdeen-pl., u.t. 11¼ yrs., g.r. 12*l.*, y.r. 54*l.* 260
Hyde Park.—57, Leinster-sq., u.t. 43¾ yrs., g.r. 20*l.*, y.r. 125*l.* 740
South Kensington.—35, Nevern-pl., u.t. 61¼ yrs., g.r. 15*l.*, y.r. 80*l.* 530
Belvedere, Kent.—3 and 6, Gladeswood-rd., f., w.r. 52*l.* 200

By ORGILL, MARES, & BARLEY.

Cheltenham, Glos.—Regent-st., Star Hotel, f. and p. 1,600

By THURGOOD & MARTIN.

Peckham.—Chadwick-rd., f.g. rents 30*l.*, reversion in 41 yrs. 830
St. Pancras.—18 and 19, Goldington-st., u.t. 38 yrs., g.r. 21*l.*, y.r. 76*l.* 235

By FREDERICK WARMAN.

Islington.—348, Upper-st. (s.), u.t. 15 yrs., g.r. 10*l.*, y.r. 50*l.* 150

By BORRMAN & Co.

Tottenham.—30, 34, and 51, Dongola-rd., u.t. 85 yrs., g.r. 17*l.* 10s. 370

By BEARD & SON.

Kensal Rise.—College-rd., i.g. rents 32*l.*, u.t. 84 yrs., g.r. 2*l.* 510
29 and 31, Kilburn-la. (s.), u.t. 74 yrs., g.r. 32*l.* 10s., y.r. 206*l.* 1,790
Soho.—26 and 27, Noel-st. (s.), u.t. 87 yrs., g.r. 50*l.*, y. and e.r. 300*l.* 2,975
Chiswick.—332, High-rd. (s.), f., y.r. 125*l.* 2,200

Fulham.—93, 95, and 97, Wandsworth Bridge-rd. (s.), f., y. and e.r. 258*l.* £2,805
Sandilands-rd., The Nook, f., y.r. 20*l.* 275
332, North End-rd. (s.), u.t. 60 yrs., g.r. 13*l.*, y.r. 90*l.* 1,200
199 and 207, New King's-rd., u.t. 87 yrs., g.r. 28*l.*, y.r. 170*l.* 1,270

By VENTON, BULL, & COOPER.

Wandsworth.—Burr-rd., f.g. rents 10*l.*, reversion in 54 yrs. 315
Marl-st., f.g. rents 84*l.* 10s., reversion in 55 yrs. 1,745
Old Ford.—Usher-rd., f.g. rents 10*l.*, reversion in 52 yrs. 205
Camberwell.—Cator-st., f.g. rents 63*l.* 10s., reversion in 53 and 51 yrs. 1,385
Hornsey.—Westfield-rd., f.g.r. 7*l.* 7s., reversion in 56 yrs. 155
Boyton-rd., f.g. rents 52*l.*, reversion in 56 and 57 yrs. 1,030
Harringay-rd., f.g. rents 45*l.*, reversion in 56 and 57 yrs. 970
St. Mary's-rd., etc., f.g. rents 42*l.*, reversion in 56 yrs. 890
Silvertown.—Constance-st., f.g. rents 17*l.* 2s., reversion in 57 yrs. 340
Notting Hill.—Crescent st., f.g.r. 10*l.*, reversion in 51 yrs. 180
Lee.—Summerfield-st., f.g. rents 6*l.* 6s., reversion in 49 yrs. 125
Stoke Newington.—Ayrsome-rd., f.g. rents 55*l.* 10s., reversion in 68 yrs. 1,250
Church-st., etc., f.g. rents 114*l.* 5s., reversion in 68 yrs. 2,520
West Norwood.—Thurlow-hill., f.g. rents 15*l.* 10s., reversion in 58 yrs. 340
Holloway.—Cromwell-rd., f.g. rents 11*l.*, reversion in 52 yrs. 210
Brookside-rd., f.g. rents 155*l.*, reversion in 52 yrs. 2,990
Stratford.—Forest-la., f.g.r. 5*l.* 5s., reversion in 46 yrs. 115
Peckham.—Staveley-rd., f.g.r. 7*l.* 4s., reversion in 33 yrs. 195
Clapham.—Roundell-st., f.g. rents, 60*l.*, reversion in 53 yrs. 900
Battersea.—Bramwell-st., f.g. rents, 80*l.*, reversion in 53 yrs. 1,370
Queen's-pl., etc., f.g. rents 16*l.*, reversion in 53 yrs. 330
Stockwood-st., f.g. rents 54*l.*, reversion in 55 yrs. 1,015
Tooting.—Aldis-st., f.g. rents 27*l.* 10s., reversion in 57 yrs. 550
Highgate.—Bertram-st., f.g. rents 18*l.*, reversion in 53 yrs. 400
Brixton.—Wingmore-rd., f.g. rents 49*l.*, reversion in 54 yrs. 1,050
Kentish Town.—Hadley-st., f.g.r. 5*l.*, reversion in 47 yrs. 110
Deptford.—Angus-st., f.g. rents 42*l.*, reversion in 56 yrs. 900

November 28 to 30.—By TYLER & Co.

Bradford and Shipley, Yorks.—Part of the Rosse Estates, 130 acres, including three hotels, etc., f. 33,230

November 29.—By RUSHWORTH & BROWN.

New Bond-st.—19 & 19A, Brook-st. (business premises), corporation lease, g.r. 5*l.* 8s. 4d., y.r. 400*l.* 11,500

By HOBSON, RICHARDS, & Co.

Croydon.—124, George-st. (s.), and range of stabling, u.t. 57¼ yrs., g.r. 30*l.* 5s., e.r. 250*l.* 2,200

By HENRY HOLMES & Co.

Euston-rd.—Nos. 296 and 304, also 7 to 11, Eden-st., f., y.r. 340*l.* 6,650
Tottenham Court-rd.—39, 43, and 45, Grafton-st., f., y.r. 235*l.* 4,425

By ROBERT TIDEY & SON.

Paddington.—122, Kensal-rd (s.), u.t. 35½ yrs., g.r. 8*l.* 8s., e.r. 34*l.* 100
Stoke Newington.—80 and 82, Green-lanes (s.), u.t. 51¼ yrs., g.r. 10*l.*, y.r. 113*l.* 800

By WAGSTAFF & SON.

Islington.—138, Essex-rd (s.), f., y.r. 73*l.* 1,185

By C. P. WHITELEY & SON.

West Croydon.—Westbury-rd., f.g.r. 4*l.* 15s., reversion in 58 yrs. 100
Clapham.—25, Sandmere-rd., u.t. 68 yrs., g.r. 8*l.* 10s., y.r. 40*l.* 325

By N. EASTON & SON.

Cottingham, Yorks.—Grass-close, 6 a. 5 r. 30 p., f. 445

By CHARLES HALL.

Stockwell.—Andalus-rd., Mission Hall, u.t. 63 yrs., g.r. 7*l.* 185

November 30.—By C. C. & T. MOORE.

Mile End.—230 to 236 (even), Devonshire-st.; 1 to 8, Mays-buildings, f., w.r. 244*l.* 8s. 900
Bow.—12, Eglinton-rd., u.t. 50 yrs., g.r. 5*l.*, y.r. 52*l.* 200

By BOX, GAPP, & Co.

Walthamstow.—29, Devonshire-rd., f., p. 200

By CHAS. CANEY.

Camberwell.—90 and 92, Vestry-rd., u.t. 65 yrs., g.r. 16*l.*, w.r. 88*l.* 8s. 375

By FISHER, STANHOPE, & Co.

Stoke Newington.—29, Heathland-rd., u.t. 63 yrs., g.r. 9*l.*, e.r. 48*l.* 400
63, Farleigh-rd., u.t. 53 yrs., g.r. 6*l.* 10s., y.r. 36*l.* 280
72, Kynaston-rd., u.t. 53 yrs., g.r. 6*l.*, w.r. 42*l.* 225
Walthamstow.—15, Erskine-rd., u.t. 78 yrs., g.r. 5*l.*, w.r. 31*l.* 4s. 135

By NEWSON & SHEPHARDS.

Dalston.—84, 84A, and 86, Mortimer-rd., u.t. 65 yrs., g.r. 13*l.* 10s., y. and e.r. 104*l.* 600
Caledonian-rd.—3, 18, and 20, Stanmore-st., u.t. 29 yrs., g.r. 15*l.*, q.r. 11*l.* 620
Holloway.—32, Mercer's-rd., u.t. 56 yrs., g.r. 12*l.* 15s., e.r. 60*l.* 500
Enfield.—41 and 43, Gordon-rd., f., w.r. 35*l.* 2s. 40, 42, 48, and 50, Holly-rd. and 2 plots, f., w.r. 80*l.* 12s. 210
Totteridge-rd., Providence Cottage, f., w.r. 24*l.* 14s. 570
1 and 2, Maria-villas, f., w.r. 41*l.* 12s. 240
230

Victoria Park.—4 and 6, Risholme-st., f., w.r. 67*l.* 12s. £350

By T. D. & A. R. PEACEY.

Marylebone.—5, John-st., f., w.r. 114*l.* 8s. 920
Edgware-rd.—No. 91, also 13, Torrington-mews, u.t. 8 yrs., g.r. 18*l.* 8s., y.r. 175*l.* 750
Hackney.—168, Amhurst-rd., u.t. 35 yrs., g.r. 8*l.*, y.r. 30*l.* 320
Marylebone.—5 and 6, Frederick-mews, u.t. 9 yrs., g.r. 9*l.*, y.r. 60*l.* 300

By PROTHEROE & MORRIS.

Woodford.—Grove-hill, f.g.r. 6*l.*, reversion in 89 yrs. 145
Wanstead.—45, Cleveland-rd., f., y.r. 26*l.* 315

By STIMSON & SONS.

Chiswick.—25 to 51, Belmont-gr., u.t. 56 yrs., g.r. 128*l.* 4s., w.r. 913*l.* 18s. 4,270
Barnes.—24, 28, 31, and 33, Eleanor-gr., u.t. 57 yrs., g.r. 16*l.*, w.r. 100*l.* 2s. 300
Spitalfields.—7 and 9, Brushfield-st (s.), f., y.r. 120*l.* 1,200
Southwark.—112, Borough High-st. (s.), f., y.r. 80*l.* 800

December 1.—By DRIVERS.

Caledonian-rd.—108, Wellington-rd., u.t. 60 yrs., g.r. 10*l.* 10s., y.r. 45*l.* 110

By W. A. HEAD.

Pimlico.—7 and 9, Alderney-st., u.t. 21 yrs., g.r. 14*l.*, p. 350
South Lambeth.—40, Thorne-rd., u.t. 40½ yrs., g.r. 6*l.*, p. 340

By JONES, SON, & DAY.

Poplar.—Gough-st., Waterloo Hero p.h., lease for 18 yrs. at 80*l.*, with goodwill and possession 1,685
Stepney.—136, White Horse-st. (yard), f., w.r. 45*l.* 625
Poplar.—Greenfield-st., yard and premises, f., w.r. 26*l.* 160
Limehouse.—Willow-row, stabling, f., y.r., 17*l.* 190
East Ham.—1, Vicarage-la. (s.), f., p. 200
Edmonton.—29, Rosebery-rd., f., w.r. 20*l.* 16s. 155
Leyton.—44, Farmer-rd. (s.), u.t. 71 yrs., g.r. 10*l.*, e.r. 35*l.* 100

By STOCKER & ROBERTS.

Lee.—121, High-rd., u.t. 40 yrs., g.r. 9*l.*, e.r. 45*l.* 400

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; h.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£ s. d.
Best Stocks	1 15 0
Picked Stocks for Facings	2 7 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Flettons	1 10 6	Best Blue Pressed	
Best Fareham Red	3 12 0	Staffordshire	3 15 0
Best Red Pressed Ruabon Facing	5 0 0	Do. Bullnose	4 0 0
		Best Stourbridge Fire Bricks	4 0 0

GLAZED BRICKS—

Best White, Ivory, and Salt Glzd. Str'tch'rs	11 7 6	Double Headers	13 17 6
		One Side and two Ends	17 17 6
Headers	10 17 6	Two Sides and one End	18 17 6
Quoins, Bullnose, and 4½ in. Flats	14 17 6	Splays & Squints	16 7 6
D'ble Stretchers	16 17 6		

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 9	per yard, delivered.
Thames Ballast	5 6	" "
Best Portland Cement	30 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 13s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 3
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Beer in blocks	1 6	Red Mansfield Freestone	2 4
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2 8
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 3		

STONE (*Continued*).

YORK STONE—*Robin Hood Quality.*

	£	s.	d.
Per Ft. Cube, Delivered at Railway Depôt.			
Scappled random blocks	2	10	
Per Ft. Super., Delivered at Railway Depôt.			
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	
6 in. rubbed two sides ditto, ditto	2	6	
3 in. sawn two sides slabs (random sizes)	0	11½	
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7	
1½ in. to 2 in. ditto, ditto	0	6	

HARD YORK—

	£	s.	d.
Per Ft. Cube, Delivered at Railway Depôt.			
Scappled random blocks	3	0	
Per Ft. Super., Delivered at Railway Depôt.			
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8	
6 in. rubbed two sides ditto	3	0	
3 in. sawn two sides slabs (random sizes)	1	2	
2 in. self-faced random flags	0	5	

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6	20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	13	17	6	20×12 ditto	18	7	6
20×10 1st quality ditto	13	0	0	18×10 ditto	13	5	0
20×12 ditto	13	15	0	16×8 ditto	10	5	0
16×8 ditto	7	5	0	20×10 permanent green	11	12	6
22×10 best blue Portmadoc	12	12	6	18×10 ditto	9	12	6
16×8 ditto	6	12	6	16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Hartshill" brand, plain sand-faced (per 1000)	50	0
Hip and Valley (per doz.)	3	7	Do. pressed (per 1000)	47	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	50	0
Do. Ornamental (per 1000)	52	6	Hip (per doz.)	4	0
Hip and Valley (per doz.)	4	0	Valley (per doz.)	3	6
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per 1000)	45	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz.)	3	6

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	...	15	10	0
Deals: best 3 by 9	13	10	0	...	14	10	0
Battens: best 2½ in. by 7 in. and 8in., and 3 in. by 7 in. and 8 in.	11	10	0	...	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0		less than 7 in. and 8 in.		
Deals: seconds	1	0	0		less than best.		
Battens: seconds	0	10	0	"		"	
2 in. by in. and 2 in. by 6 in.	9	10	0	...	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	...	10	0	0
Foreign Sawn Boards—							
1 in. and 1½ in. by 7 in.	0	10	0		more than battens.		
½ in.	1	0	0		"		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5	0	0	...	5	10	0
Seconds	4	10	0	...	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	...	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	...	3	10	0
Swedish balks	2	12	6	...	3	0	0
Pitch-pine timber (50 ft. average)	5	5	0	...	6	0	0

JOINERS' WOOD.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	...	25	10	0
3 in. by 9 in.	22	10	0	...	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	...	18	0	0
Second yellow deals, 3in. by 11in.	19	0	0	...	20	0	0
" " 3 in. by 9 in.	18	0	0	...	19	10	0
Battens, 2½ in. and 3in. by 7 in.	14	0	0	...	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	...	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	...	22	10	0
Do. 3 in. by 9 in.	18	10	0	...	19	10	0
Battens	14	0	0	...	15	0	0
Second yellow deals, 3 in. by 11 in	16	10	0	...	17	10	0
Do. 3 in. by 9 in.	15	0	0	...	16	0	0
Battens	11	10	0	...	12	10	0
Third yellow deals, 3in. by 11 in.	13	10	0	...	14	10	0
Do. 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	15	0	0	...	16	0	0
" " 3 in. by 9 in.	14	0	0	...	14	10	0
Battens	11	10	0	...	12	10	0
Second white deals, 3in. by 11in.	14	0	0	...	15	0	0
" " 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
Pitch-pine: deals	19	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0		upwards.		
Oddments	32	0	0		"		
Seconds, regular sizes	33	0	0		"		
Oddments	28	0	0		"		
Kurai Pine—Planks per ft. cube	0	3	6	...	0	5	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	9
Small " "	0	2	6	...	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	9	...	0	0	11
¼ in. do. do.	0	0	8	...		—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	10	...	0	1	1
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	At per standard. £	s.	d.		£	s.	d.
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	18	0	0	...	22	0	0
American Whitewood planks, per ft. cube	0	4	0	...	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	3	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	6
¾ in. by 7 in. white " "	0	10	0	...	0	11	"
1 in. by 7 in. " "	0	12	9	...	0	15	6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	10	0	...	8	0	0
Compound Girders, ordinary sections	9	10	0	...	10	0	0
Steel Compound Stanchions	11	0	0	...	12	0	0
Angles, Tees, and Channels, ordinary sections	9	10	0	...	10	0	0
Flitch Plates	9	10	0	...	9	10	0
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0	...	8	10	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON—							
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0	...	9	5	0
Staffordshire "Marked Bars"	10	10	0	...	—		
Mild Steel Bars	8	15	0	...	9	5	0
Hoop Iron, basis price	9	5	0	...	9	10	0
" " Galvanised	17	0	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	9	15	0	...	—		
" " 24 g.	10	15	0	...	—		
" " 26 g.	12	5	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	15	10	0	...	—		
" " 26 g.	16	10	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	18	0	0	...	—		
" " 22 g. and 24 g.	18	10	0	...	—		
" " 26 g.	20	0	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes, 6ft. to 8ft. 20 g.	14	10	0	...	—		
" " 22 g. and 24 g.	14	15	0	...	—		
" " 26 g.	16	5	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	0	0	...	—		
Best Soft Steel Sheets, 2 g. & 24 g.	13	0	0	...	—		
" " " 26 g.	15	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	10	0	...	11	0	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	£	s.	d.		
LEAD—Sheet, English, 4lb. and up	19	10	0	...	—
Pipe in coils	20	0	0	...	—
Soil pipe	23	0	0	...	—
Compo pipe	23	0	0	...	—
ZINC—Sheet—	In casks of 10 cwt.				
Vielle Montagne	33	10	0	...	—
Silesian	33	5	0	...	—
Zinc, in bundles, 1s. per cwt. extra.					
COPPER—					
Strong Sheet per lb.	0	1	0	...	—
Thin " "	0	1	1	...	—
Copper nails	0	0	10	...	—
Copper wire	0	0	10	...	—
BRASS—					
Strong Sheet	0	0	11	...	—
Thin	0	1	0	...	—
TIN—English Ingots	0	2	0	...	—
SOLDER—Plumbers'	0	0	8½	...	—
Tinmen's	0	0	11	...	—
Blowpipe	0	1	2	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
" fourths	1½d.	32 oz. thirds	5d.
21 oz. thirds	3d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
26 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

¼ Hartley's	2d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
⅜ "	2½d.		
½ "	2½d.	Ditto, tinted	5d.

* Not less than three crates.

OILS, &c.

		£	s.	d.
RAW Linseed Oil in pipes	per gallon	0	3	0
" " in barrels	"	0	3	1
" " in drums	"	0	3	3
Boiled " in barrels	"	0	3	3
" " in drums	"	0	3	6
Turpentine in barrels	"	0	2	11
" in drums	"	0	3	1
Genuine Ground English White Lead, per ton		25	0	0
Red Lead, Dry	"	22	10	0
Best Linseed Oil Putty	per cwt.	0	10	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	6	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	[illegible]	0
Brunswick Black	0	5	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

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N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 a.m. *on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BRIXHAM.—For converting a portion of the market into a picture theatre. Mr. F. W. Vanstone, architect, Palace-chambers, Paignton. Quantities not supplied:—

G. Webber	£340	Hazlewood Bros., Brixham*	£237
E. Westlake	324		
H. Webber & Sons	305	G. Cooksley‡	229

‡ Withdrawn.

DOWNPATRICK.—For building and repairing sea-walls between Marlfield and Bankmore, Portaferry. Mr. J. Heron, County Surveyor, Downpatrick:—

J. Dorrian, Portaferry £173 10

Sea-walls between Newtownaards and Portaferry.

J. Boyd, Ballymiscan, Holywood £285 0

EGREMONT.—For erection of a showroom, offices, etc., at the gasworks. Mr. Cowan, Council Surveyor, Egremont:—

Mason: J. Smith, Egremont, Cumberland
Painter: R. Donnee
Joiner: J. Watson
Plasterer: J. Lovall, Harrington, Cumberland
Slater: J. Lawson, Cleator Moor, Cumberland
} £348

[Surveyor's estimate, £344 18s. 3d. Number of tradesmen tendering, fourteen.]

GREENOCK.—For strengthening of about 100 ft. in length of the East India Wharf. Mr. R. Crawford, M.Inst.C.E., Engineer to the Trustees, Greenock:—

G. Halliday, Ltd., Contractors, Rothesay* £942

HAREFIELD.—For the erection of a factory building at Harefield, Middlesex, for Bell's United Asbestos Company. Mr. Arthur C. Russell, architect, 13, Basinghall-street, E.C. Quantities by Messrs. Andrews & Read, 13, Basinghall-street, E.C:—

		Time. Weeks.
Turnbull & Son	£3,993	20
Fassnidge & Co.	3,936	10
Battley, Sons, & Holness	3,890	16
Roome & Co.	3,887	11
T. W. Leng	3,869	15
Marsland & Son	3,865	14
J. Greenwood, Ltd.	3,828	13
H. Groves	3,820	13
Mills & Sons	3,789	16
Sabey & Co.	3,780	12
A. & B. Hanson‡	3,737	8
C. F. Kearley	3,670	16

‡ Accepted on time.

HAVERFORDWEST. — For the rebuilding of premises in Dew-street. Messrs. D. E. Thomas & Son, architects and surveyors, Haverfordwest :—

W. Watts	£825	W. Reynish	£750
H. J. Rogers	795	T. Harries, Hazelbeach, Neyland*	715
D. Evans	785		

HOOLE.—For erection of a new Council school, for Cheshire County Council. Messrs. J. H. Davies & Sons, architects, 14, Newgate-street, Chester. Quantities by architects :—

J. G. Davies & Co.	£4,149	J. Mayers, Son, & Co.	£3,911
P. Williams	4,080	McLennan Bros.	3,890
M. Browne	3,900	Nixon	3,783
W. Storrs, Sons, & Co.	3,939	Matthews, Nantwich‡	3,528

‡ Recommended for acceptance.

IMMINGHAM.—For construction of stoneware sewers, temporary pump well, and engine-shed. Mr. A. Hobson, engineer, 196, Legsby-avenue, Grimsby. Quantities by the engineer :—

W. B. Whitton	£323 0 2	C. Whittaker	£289 0 0
W. Church	293 16 3	Pettifer & Stainton, Immingham*	257 0 0
T. Roper & Sons, Ltd.	273 8 3		

ISLEWORTH.—For alterations and improvements at the public hall :—

Eldridge & Sons	£84 0 0	T. J. Homan	£72 13 6
Daniels & Son	83 12 6	A. Wellman	72 11 9
W. J. Wilkinson	81 0 0	H. Morgan	67 10 0
W. Lacey	81 0 0	Wills & Son, Whitton*	63 10 0
Tinkler & Son	80 0 0		
Hicks & Son	78 15 0		

LEEK.—For sundry works at the coffee tavern, Cattle Market. Mr. W. E. Beachan, Surveyor, Town Hall, Leek, Staffs. Quantities by the Surveyor :—

J. Heath & Sons	£83 0 0	T. Grace*	£73 0 0
S. Salt	76 11 6	J. Heath	60 4 2
G. Hine	72 6 2	R. A. Crombie	57 0 0

[All of Leek.]

LONDON.—For erection of a secondary school for boys at Craster-road, Norwood, for the London County Council :—

J. Appleby & Sons	£26,738 0 0
W. Smith & Son	25,748 0 0
W. King & Son	25,589 0 0
G. Parker & Sons	25,370 0 0
J. Garrett & Son	25,338 18 10
Thomas & Edge	24,367 0 0
W. Downs	24,197 0 0
C. Wall, Ltd.	23,864 0 0
Kirk & Randall	23,680 0 0
J. Marsland & Sons	23,474 0 0
J. Smith & Sons, Ltd.	23,322 0 0
T. D. Leng	23,321 0 0
Holliday & Greenwood, Ltd.	23,302 0 0
Patman & Fotheringham, Ltd.	23,283 0 0
G. E. Wallis & Sons, Ltd.	22,887 0 0
J. & C. Bowyer, Ltd.	22,585 0 0
Rowley Bros.	22,555 0 0

[The Architect's estimate, comparable with the tenders, is £22,654.]

LONDON.—For redividing rooms E and F in the boys', girls', and infants' departments at the "Whittington" School, Islington, for the London County Council :—

Brand, Pettit, & Co.	£1,168	McCormick & Sons, Ltd.	£865
J. Garrett & Son	1,094	W. Lawrence & Son	840
Holliday & Greenwood, Ltd.	974	McLaughlin & Harvey, Ltd.	815
Rowley Bros.	918	H. L. Holloway	800
A. E. Symes	897		

LONDON.—For redividing rooms A, B, and C in the boys' department, and rooms C, D, and E in the girls' and infants' departments at the Johanna-street School, Lambeth, for the London County Council :—

J. Garrett & Son	£1,050 0	T. D. Leng	£773 0
Courtney & Fairbairn, Ltd.	942 5	W. Lawrence & Son	756 0
Holliday & Greenwood, Ltd.	854 0	Lathey Bros.	732 0
W. Smith & Son	821 0	Lole & Co.	728 0
J. & C. Bowyer, Ltd.	777 0	W. Johnson & Co., Ltd.	725 0
		H. L. Holloway	720 0

LONDON.—For the supply, etc., of the machine-shop tools required for the tramways permanent-way depots at Battersea-bridge and Leven-road, Poplar, for the London County Council :—

Tangyes, Ltd.	£3,230 5
Pollock & McNab, Ltd.	2,404 10
Buck & Hickman, Ltd.	2,340 2
Judson Jackson Co.	1,781 18
J. Holroyd & Co., Ltd.	1,421 10
C. H. Caton & Co., Ltd.	1,420 0
Greenwood & Batley, Ltd.	305 0
W. B. Haig & Co., Ltd.	54 17

LONDON.—For alterations at the Islington fire-station, for the London Council Council :—

H. L. Holloway	£786	W. Johnson & Co., Ltd.	£606
Rowley Bros.	693	W. Downs	595
Leslie & Co., Ltd.	679	Higg & Hill, Ltd.	595
J. & C. Bowyer, Ltd.	674		

LONDON.—For erection of a secondary school for girls, Highgate-road, N., for the London County Council :—

J. Allen & Sons, Ltd.	£27,444 0 0
C. Miskin & Sons	27,183 0 0
Treasure & Sons, Ltd.	27,040 0 0
Holliday & Greenwood, Ltd.	25,381 0 0
Perry & Co. (Bow), Ltd.	25,267 0 0
E. Lawrance & Sons, Ltd.	25,047 0 0
Ford & Walton, Ltd.	24,944 17 3
G. Godson & Sons	24,631 0 0
Rowley Bros.	24,4[illegible]3 0 0
J. & C. Bowyer, Ltd.	24,090 0 0
Patman & Fotheringham, Ltd.	23,925 0 0
McLaughlin & Harvey, Ltd.	23,690 18 1

[The Architect's estimate, comparable with the tenders, is £24,500.]

LONDON.—For supplying and erecting a double-decker steam-pipe oven at the Cornwallis-road workhouse, Upper Holloway, for the Guardians of St. Mary, Islington. Mr. Edmund J. Harrison, architect, 9, Gray's Inn-square, Holborn :—

Moorwood & Co.	£380	H. Heaton	£255
W. F. Mason, Ltd.	330	A. Hunt, Ltd., Milton Engineering Works, Leicester*	230
Werner, Pfleiderer, & Perkins	307	T. Collins & Co.	220
J. Baker & Co.	285		

NORBURY.—For erection of a public elementary school at Stanford-road, for the Education Committee of the County Borough of Croydon. Mr. H. Carter-Pegg, F.R.I.B.A., architect, Thornton Heath :—

Greenwood & Sons	£14,600 0	G. Everitt	£12,650 0
A. L. Ingleton	13,957 0	W. E. Blake	12,650 0
Lawrence & Sons	13,735 0	Cook & Sons	12,577 0
Foster & Dickson	13,531 0	P. Drever	12,447 0
Longley & Co.	12,988 0	Smith & Sons	12,263 0
Lawrence & Son	12,944 0	S. E. Moss	12,227 10
Akers & Co.	12,929 0	Smith & Sons	12,221 0
E. Fitt McCarthy	12,872 0	E. J. Saunders, Croydon†	12,100 0
Grace & Marsh	12,680 0		

PRINCES RISBOROUGH. — For construction of temporary septic tanks and other works, for Wycombe Rural District Council :—

G. P. Trentham	£240 0 0	O. & E. Barnard, Princes Risborough*	£113 5 5
W. H. Siarey	187 10 0	J. Miller‡	34 5 0
W. E. Lee	139 1 4		

‡ Excavation only.

WELWYN.—For erection of an engineer's cottage. Mr. H. F. Mence, architect, 11, St. Peter's-street, St. Albans :—

Golddawk & Son	£275 0	A. Pitkin	£248 0
F. Newton	267 0	J. F. Owen, Gustard Wood, Wheathampstead*	241 5
J. Naden	260 0		
J. T. Bushell	255 0		

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